QUALITY OF LIFE IN PATIENTS WITH BIPOLAR DISORDER UNDER REMISSION IN RELATION TO CLINICAL VARIABLES AND PSYCHOSOCIAL FACTORS

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CERTIFICATE

This is to certify that the dissertation titled **'QUALITY OF LIFE IN PATIENTS WITH BIPOLAR DISORDER UNDER REMISSION IN RELATION TO CLINICAL VARIABLES AND PSYCHOSOCIAL FACTORS'** is the bonafide original work of **Dr.S.GUNAMANI** in partial fulfilment of the requirements for M.D.(Psychiatry) BRANCH-XVIII examination of the Tamil Nadu Dr.M.G.R. Medical University to be held in April 2013. The period of study was from May 2012 to October 2012.

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DECLARATION

I, **Dr.S.GUNAMANI**, solemnly declare that the dissertation titled **'QUALITY OF LIFE IN PATIENTS WITH BIPOLAR DISORDER UNDER REMISSION IN RELATION TO CLINICAL VARIABLES AND PSYCHOSOCIAL FACTORS'** is a bonafide work done by me in the Department of Psychiatry, Thanjavur Medical College and Hospital during May 2012 to October 2012 under the guidance and supervision of Dr. S.ILANGOVAN, Professor and Head, Department of Psychiatry, Thanjavur Medical College, Thanjavur.

This dissertation is submitted to The Tamil Nadu Dr. M.G.R. Medical University, towards partial fulfilment of requirement for the award of M.D. Degree (Branch-XVIII) in Psychiatry.

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CONTENTS

ABSTRACT

QUALITY OF LIFE IN PATIENTS WITH BIPOLAR DISORDER UNDER REMISSION IN RELATION TO CLINICAL VARIABLES AND PSYCHOSOCIAL FACTORS

Background:

Bipolar Disorder is a chronic psychiatric disorder with characteristic manic and depressive episodes. It occurs in both male and female equally and resulting in impairment of quality of life (QOL) in them at various degrees during remission.

Methods:

Fifty numbers of bipolar disorder patients under remission from the cases attending outpatients unit of the tertiary care hospital for regular follow up were selected. Age and sex matched healthy individuals were selected as controls. A semi structured proforma was administered to collect sociodemographic profile of the samples. Hamilton Depression Rating Scale (HDRS) and Young Mania Rating Scale (YMRS) were employed to ensure that the patients were under remission. The quality of life was assessed with WHOQOL-Bref scale. The clinical information such as age of onset, duration of illness, number of episodes were recorded and rating scales such as Presumptive Stressful Life Events Scale(PSLES), Multidimensional Scale of Perceived Social Support(MSPSS) and Hassles scale were employed. The changes in the quality of life were determined

with WHOQOL-Bref scale score as dependent variable and other recordings such as sociodemographic profile, rating scale scores and clinical variables as independent variables using regression analysis and correlation with software. Test of significance was carried out wherever necessary.

Result:

The sociodemographic profile of the patients with higher percentage was as follows. Married (64), education –SSLC (50), Hindus (82), income/ month 2000-4000 (62), nuclear family type (82) and rural background (82). The mean age at onset, duration of illness, number of episodes, number of life events, life events score, Hassles frequency, severity, intensity, HDRS, YMRS and MSPSS scores for the patients were 25.4, 12.2, 5.8, 2.04, 96.98, 38.98, 76.6, 1.92, 2.38, 0.58 and 27.38 respectively. There was a significant ($P<0.01$) reduction in the WHOQOL score of patients by about 23, 41, 24 and 18% on the physical, psychological, social and environmental domains compared to healthy subjects. Regression analysis of the HDRS score over WHOQOL score explained that higher HDRS score significantly ($P<0.01$) influenced on all the domains of QOL with more variance on the psychological domain. Similarly, Hassles scale score explained higher variance on the psychological domain and lesser influence on remaining domains of QOL score. However, YMRS score did not influence the QOL of the patients. In this study patients received positive social support and the score was

positively correlated with QOL. On the contrary, HDRS score was negatively correlated ($P<0.1$).

Conclusion:

It may be concluded that QOL of bipolar patients under remission had significantly lower compared to healthy individuals. The HDRS and Hassles scale scores were strongly and significantly influenced QOL. On the other hand, patients perceived better positive support from the family.

1. INTRODUCTION

Bipolar disorder (BD) is a mood disorder which involves extreme changes in affect, cognition and behavior. It can affect people at any age and occurs both in male and female equally. It is found in all races, ethnic groups and across all social classes. The onset is generally late adolescence or early adulthood with major implications on the person's development and quality of life (QOL).

Globally it has been ranked the ninth highest cause of years of life lost due to death or disability and the fifth most prevalent cause of disability among individuals aged between 15 and 44 years (World Health Organisation, 1995). It is now recognized as a major public health problem.

Lifetime prevalence rates of bipolar disorder are about 4 per cent (Angst, 1998). A meta-analysis of 13 epidemiological studies which were conducted in India estimated a prevalence rate of 2.2 to 3.3% for manic depression (Venkataswamy, et al., 1998). However, in a recent review article it was stated that the prevalence of mental disorders reported in epidemiological surveys considered lower estimates rather than accurate reflections of the true prevalence in the population due to its methodological flaws (Suresh Bada Math et al., 2007).

International Classification of Diseases (ICD-10) requires minimum of two episodes out of which one must be mania, hypomania or mixed episode to diagnose bipolar disorder. But in Diagnostic and statistical Manual 4th Edition Text Revision (DSM-IV-TR) single manic, hypomanic and mixed episodes are also classified as bipolar disorder. According to DSM-IV-TR, Bipolar Disorder has been reported to have episodes of mania, hypomania, mixed, depressed and unspecified and it also classifies severity levels into mild, moderate, severe without psychosis and severe with psychosis. It comprises a spectrum of disorders to include bipolar I, bipolar II, cyclothymia, and bipolar disorder not otherwise specified (NOS). The cyclical recurrence of mood episodes including both depression and mood elevation is the defining feature of any of these categories of bipolar disorder

Bipolar disorders are more recurrent and chronic in nature. Moreover, it can severely affect the quality of life and functioning, including work and productivity at work. It is understood that Bipolar Disorder is associated with a higher level of functional impairment than previously assumed, particularly with regard to social adjustment and vocational functioning. Due to the cyclical nature of this illness, there is an impact on the social and functional well-being of the individual. Moreover, subsyndromal symptoms which are presenting most of the time would eventually affect the quality of life.

Of late, the issue of quality of life has received increased attention from the medical community due to its significant role in patient rehabilitation (Lustig and Crowder, 2000).

Quality of life is a multidimensional concept, encompassing different aspects such as physical, emotional, social and spiritual wellbeing (Guyatt et al., 1993). The World Health Organization (WHO) has described QOL as "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". This broad generic conceptualization can be distinguished from the more specific concept of Health Related QOL (HRQOL) which refers to those aspects of individual's life that impact directly upon their health.

In absence of a disease-specific instrument for measuring QOL in bipolar patients, many earlier authors have used World Health Organization Quality of Life Scale (WHOQOL-BREF), Medical Outcome Study- Short Form (SF-36), Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q), Quality of Life Index (QLI), EuroQOL:5 Dimensions (EQ-5D) scale and Quality of Life Inventory for assessing the QOL in bipolar patients.

QOL has been impaired in bipoar patients during different phases of disorder and has been associated with poor work, social and family life (Gazalle et al., 2006).

Impaired QOL have also been observed in remitted patients (MacQueen et al., 2000; Gazalle et al., 2007). Moreover, euthymic bipolar patients had reduced cognitive functions which resulted in poor social outcome (Burdick et al., 2010). Several euthymic bipolar patients have remarkable dysfunction in the cognition and contribute to the patients functioning. Previous published works shows that neurocognitive deficits are the strong predictors of functional capacity. Neurocognitive defects are the impairments in the ability of the functioning of the brain areas, neural pathways.

. In addition to biological and genetic factors, life events and other psychosocial factors clearly play a role in the development of Bipolar Disorder. These psychosocial factors also play a role in the relapse of the illness and modifying the course of the disorder.

Knowledge about the clinical predictors and understanding the factors related to quality of life of the patients would help us to design specific clinical interventions for this otherwise a devastating disorder.

In our country, the assessment of QOL and the factors contributing to it in bipolar patients under remission has not been studied in detail. Hence, the present study was carried out to evaluate the quality of life in bipolar patients under remission and its relation to certain clinical variables and psychosocial factors.

AIMS AND OBJECTIVES

1. To assess the quality of life in patients with bipolar disorder under remission
2. To study the impact of age of onset, number of episodes and duration of illness on quality of life in patients with bipolar disorder under remission
3. To study the impact of stressful life events , daily hassles, and perceived social support on quality of life in patients with bipolar disorder under remission
4. To study the role of current depressive symptoms on the quality of life
5. To study the various sociodemographic factors associated with QOL in bipolar disorder patients under remission

2. REVIEW OF LITERATURE

Bipolar Disorder is an important psychiatric disorder mostly associated with disturbances in the psychological, social and environmental domains of the subjects which poses considerable burden on the individual as well as on the family. The symptoms of Bipolar Disorder has implications on the quality of life of the patients.

Quality of Life (QOL) is a concept difficult to describe easily and it is just more than good health and no consensus definition made to describe what makes QOL. Earlier researchers from different parts of the world have examined the complex relationship between quality of life and depressive disorder. The QOL studies pertaining to Bipolar Disorder (BD) has been low.

Not much information can be gathered for the origin of the word QOL, however, Ordway and Fairfield Osborn, American Economists were probably to have used the concept in first time, when concerning over the uncontrolled economic growth.

In early 1960, social scientists were interested in using the term QOL and understood the relationship between economic and social indicators of QOL and observed that social indicators were the main determinants of the QOL which was very positive and stable.

Campbell et al. (1976) observed that fifty per cent of the people who reported to have had disabilities enough to prevent them from carrying out things were not willing to reveal that they were dissatisfied with their health. A few of them insisted that they were totally satisfied in their life. Therefore, the physical health need not be a strong predictor of subjects' well-being.

Health-Related Quality of Life (HRQOL) is the term used to narrow down the aspects of functioning directly related to the disease and medical treatment in patients which is being used by many scientists for different diseases.

Walker and Rosser (1987) described the QOL in the medical background as a concept comprising a wide range of physical and psychological characteristics and limitations to an individual has to function and to derive satisfaction by doing things.

Calman (1984) in a study put forward another definition for the QOL as the relation between a person's expectations and achievements.

University of Toronto's Quality of Life Research Unit defined that QOL term in other words as the degree to which an individual person enjoys the important feasibilities of his or her life and their QOL model is based on the categories of "being", "belonging", and "becoming",

describing who one is, how one is not aware to one's environment, and to what extent one achieves his / her personal goals, hopes and aspirations.

While there is no consensus has been reached on the definition of the concept, most of the researchers would agree that QOL is a) a construct of multidimensional, with all aspects of psychological, social, and physical well-being, and b) a reflection of the patient's subjective evaluation of well-being rather than the health care professional's view. The problem of describing QOL has frequently been solved by taking a "psychometric short-cut," by operating the construct as a score on a questionnaire or set of scale.

Assessment is carried out based on patients' self-report and should include all the relevant domains of daily functioning (physical, mental, social) for a particular disease or a treatment protocol.

It is important to take note that the term subjective, does not mean soft or unreliable, as opposed to objective, as is often assumed, but it is referring to the source of information. Subjective data can be obtained using reliable, objective methodologies for that purpose.

QUALITY OF LIFE CONCEPT IN PSYCHIATRY

In medicine, it all started in the 1980s in researches what has been called health status research. Many instruments for assessing social functioning of the individual were developed (eg. Short Form-36). Measuring QOL is not that simple, just as there is no simple way of measuring disease. Nevertheless, hundreds of scientific medical publications were published utilising the concept of QOL with developed instruments to measure a single entity called QOL. In the medical literature, the first document appeared 40 years back.

After 1960, the following two to three decades, the numbers of medical publications on QOL rose only slowly. Again, from the early 1990s, all branches of medicine had witnessed tremendous increase in QOL research. To stress the psychological aspect of the diseases, the QOL replaced the notion of the biopsychosocial model of the disease. Today the biopsychosocial model of the disease has been replaced with QOL concept.

Of the medical specialities, oncology gained prominence in using the QOL concept where the treatment in such a way was unpleasant to the patients who preferred to go without treatment. In psychiatry, similar issues have been prevalent for a long time. The question of the “cure is

worse than the disease" arose, for instance, in asylum psychiatry and treatment of schizophrenia with conventional neuroleptic drugs.

The term QOL in psychiatry refers to the body of research work on psychological well-being, life satisfaction, emotional functioning, social support, etc. Initially, within the field of psychiatric research, the important intention of QOL assessment had been on the symptoms, impairments and disabilities of severely mentally ill persons. Since the early 1980s, there was an attempt to go for the disease models for these disorders and the majority of the new measures have been based on the perspective of general health QOL.

CONCEPTUAL MODELS OF QUALITY OF LIFE IN PSYCHIATRY

Angermeyer and Kilian (2006) in his recent review on the QOL concepts used in the psychiatric literature found three models a) the subjective satisfaction model -the level of QOL experienced by the patients depends on whether or not his/her actual living conditions meet his or her needs, wants, and wishes b) the combined subjective satisfaction/importance model - which considers different strengths that different life domains may have in a person's QOL- individuals are invited to rate not only actual living conditions, but also their importance and c)

the role functioning model-the individual enjoys a good QOL if he /she performs adequately.

Impairment in psychological functioning in bipolar patients represents the main area of psychotherapeutic and psychopharmacological interventions whereas the impairment in social functioning is the main area of rehabilitative intervention.

Today, QOL issues in mental health care are especially relevant for evaluation of treatment outcome. Outcome evaluation in mental health services is essential for the following reasons

1. Psychotherapeutic, psycho-educational and rehabilitative interventions for different cultural models and to conduct process evaluation studies because of lack of uniformity on which strategies can be used to above kinds of interventions.

2. Outcomes in mental health care are mainly influenced by social and environmental factors than in other health care systems.

According to Lehman (1982) the treatment in mental health services should be supplemented with improvement of quality of life. One has to try to increase QOL in the patients when evaluating mental health interventions and rehabilitative interventions.

QUALITY OF LIFE AND BIPOLAR DISORDER

Previously, manic-depressive illness was thought to have good prognosis. However, maniac, depressive or mixed mood disturbance and many do not have full functional recovery.

Chronic subsyndromal symptoms produce much functional impairment and are commonly seen up to a third of patients expressing extended periods of being persistently unwell.

Episodes of bipolar illness may have a cumulative effect on brain and long term patients with Bipolar Disorder may have significant cognitive compromise and impaired QOL.

In this review, the contribution of sociodemographic factors and clinical variables to the QOL for the bipolar patients under remission with reference to control population is reviewed.

2.1 Socio-demographic factors

2.1.1 Age

There is no specific age for the Bipolar Disorder to occur or otherwise almost all age groups of population were reported in the literature. Sierra et al. (2005) estimated the average age as for the sample consisted of 50 patients, 20 men and 30 women as 45.14 ± 12.9 years. In

another study, Chand et al. (2004) reported the clinical profile of an average age of bipolar patients were 42 years (42.12 ±13.10 years; range: 20–60 years).

Di Marzo et al. (2006) recorded 48.36 and 34.67 years as average of age for the patients with less than 10 and more than 10 episodes respectively in a study to find out the impact of number of episodes on Bipolar Disorder.

2.1.2 Sex

In India, Thara and Padmavathi (2009) indicated that males had an early onset of the Bipolar Disorder compared to females and also suggested that the age at onset between males and females need to be viewed cautiously as many earlier reports have not demonstrated any difference for gender.

Kennedy et al. (2005) found the mean age at onset was later in women (35.1 years) compared to men (30.0 years).

2.1.3 Marital status

In spite of no direct correlation between marital status and Bipolar Disorder, there are reports supporting the fact that marital status influencing the nature of the outcome and prevalence of the disorder.

Kebede et al.(2005) in a door to door survey found that an association between Bipolar Disorder and marital status. The authors also

reported that higher risk (3.6 times) for Bipolar Disorder in married persons than unmarried.

Presence of spouse with patients reduced the time in hospitalisation and better outcome of the patients, however, it did not reduce the number of episodes (Goi, 2009).

On the contrary, in a health clinic survey Norway, a higher proportion of the bipolar patients was single, low income and disabled (Sheoeven et al., 2011).

2.1.4 Education status

Agarwal and Gurmeet Singh (1982) in a clinical study stated that the education status of the bipolar patients was 5.3, 15.8, 19.2, 17.6 and 40.3 percent for the persons belonged to professional, graduate, high school, primary schooling and illiterate respectively.

Tsuchiya et al. (2004) explained that shorter educational history as one of the factor for the Bipolar Disorder in a gender and other variables adjusted study.

2.1.5 Type of family

Basu et al. (2001) stated that 54 per cent of the subjects selected for correlating subsyndromal symptoms and functioning of bipolar patients stabilized on lithium were from joint or extended family. Similarly, Hema Tharoor et al (2008) found 50% of the euthymic patients belonged to

nuclear family in the study on recurrent depressive disorder with or without comorbid medical illness.

2.1.6 Domicile

The place of living and its status to individual did not correlate for the Bipolar Disorder. Again most the data from government hospitals showed that majority of patients were from rural (Basu et al., 2001). Hema Tharoor et al. (2008) found 95% from rural and 5% from urban in their study on recurrent depressive disorder with or without comorbid medical illness.

2.2 Clinical variables in bipolar patients

2.2.1 Age at onset

Weissman et al. (1996) reported that the mean age at onset as 18.1, 17.1, 29.0, 22.5, 23.0 and 18.2 for the countries USA, Canada, Germany, Taiwan, Korea and New Zealand respectively. Peh and Tay (2008) also found the age at onset for the Bipolar Disorder to manifest was 19-29 years.

In a recent survey study by Lee et al. (2010), the average years of onset was from 16.7 to 19.7 for rapid cycling and non-rapid cycling bipolar disorder. This study also included data from India.

Sagar et al (2011) in a retrospective study on the mood disorder in children stated that 13.6 years as age at onset and suggested genetic vulnerability and psychological stressors for the early onset.

Carter et al. (2003) in a study with aim to investigate the effect of age at onset of Bipolar Disorder studied 320 subjects (<18 years) with a diagnosis of Bipolar disorder I and Bipolar disorder II with clinical variables. The authors found that a role of early age at onset was a significant predictor of poor outcome .

Carlson et al. (2000) examined clinical differences between patients with early onset and adult onset of psychotic mania observed a large proportion of the early-onset cases male had substance abuse comorbidity and experienced remission less frequently compared to adult-onset cases.

2.2.1 Duration of illness

Peh and Tay (2008) reported that the duration of illness varied with age group. They found that 21.5, 36.4, 15.7 and 26.4 percent cases were present in the duration of illness of less than 2, 2-5, 6-9 and more than 10 years respectively in the study conducted at Singapore in an outpatient setting.

2.2.2 Number of episodes

Recurrent episodes deteriorated the QOL score in bipolar patients (Keck et al., 1995).

Regarding predominant polarity of episodes, mania or hypomania predominance was more prevalent amongst the less recurrent patients (30.9% vs.14.8%), whilst depression was strongly associated to more than 10 episodes (33.3% vs. 18.6%) ($p < 0.004$). Depressive onset was more common amongst less recurrent patients (71.9% vs. 58%) ($p < 0.02$). Less recurrent patients had a higher number of psychotic symptoms in their first episodes (37%) compared to the highly recurrent group (26.1%) ($p < 0.05$) (Di Marzo et al.,2006).

MacQueen et al. (2000) studied relation between number of episodes and level of function concluded that number of past depressions was a strong determinant of outcome compared to mania in sixty euthymic patients.

Swann et al. (1999) recorded lower lithium effect when more number of episodes in bipolar patients.

2.3 Quality of life in bipolar disorder

2.3.1 Patients under remission

Chand et al. (2004) analysed QOL in 50 bipolar patients under remission through WHOQOL. The multiple regression analysis showed that QOL score was lower in social, physical, psychological and environmental health but not at the significant level. It was concluded that patients stabilised on mood stabilizer (lithium) had a better QOL comparable to the healthy population.

Sierra et al. (2005) used SF-36, Clinician Administered Rating Scale for Mania (CARS-M) and Hamilton Depression Rating scale (HDRS) to evaluate the QOL in bipolar patients under remission and all the subscales score in SF-36 were low in patients than control.

Gazalle et al. (2006) used WHOQOL-bref scale to assess the QOL in bipolar- and bipolar remitted patients showed that higher domains score were reported for the remitted patients compared to lower score for the depressed patients.

Mania et al. (2007) compared HRQOL between Bipolar Disorder type I and II in euthymic patients. SF-36, HDRS and Young Mania Rating Scale (YMRS) were used for the evaluation. The result of the study stated that type II was associated with poor QOL compared to type I even after long periods. Interventions might improve functional enhancement.

Robb et al. (1998) reported that women with later onset of mania developed rapid cycling course and experienced mixed episodes when evaluated through HDRS scale in an attempt to find out the gender differences in bipolar patients.

2.3.2 Assessment

Quality of Life is an area of research that has attracted an increasing amount of interest over the past two decades, particularly in health, rehabilitation, disabilities studies, and also in medicine.

QOL is an important variable which is very difficult to assess. Many QOL scales have been followed for different purpose. Most of these scales included four domains such as physical, emotional, social and environmental. Disease specific QOL scales are also available, however, there is no Bipolar Disorder specific QOL scale is available as on date. World Health Organisation Quality of Life (WHOQOL- Bref scale) which is one of the popularly used QOL scale in Bipolar Disorder. Hamilton depression rating scale (HDRS) is the commonly used depression scale with score less than 7 as remitted and more than 7 as depressed, in majority of the studies HDRS score negatively correlated with higher level of significance in the BD patients.

Skevington et al. (2004) examined the performance of WHOQOL-Bref scale from survey collected from 23 countries. Analysis of internal consistency, validity and item- total correlations indicated that WHOQOL scale had good psychometric properties of reliability. Overall, WHOQOL has a sound, cross-cultural validity as reflected by its four domains.

Akvardar et al. (2006) aimed to identify how psychiatric patients characterise QOL of their life with others. The study utilised WHOQOL scale for assessing the QOL. Patients with alcohol dependence, bipolar disorder scored low on WHOQOL domains. The authors also stated that

WHOQOL was useful in evaluating the needs and targets of interventions in bipolar patients.

Gazalle et al. (2006) used WHOQOL-bref scale to assess the QOL in bipolar depressed and bipolar remitted patients showed that higher domains score were reported for the remitted patients compared to lower score for the depressed patients.

Kumar et al. (2012) compared the QOL in three groups namely bipolar patients, caregivers and persons with no psychiatric illness using the WHOQOL-Bref Hindi version. Bipolar patients had the lowest score on all the four domains of the WHOQOL compared to the caregivers and control group. Moreover, the all the four domains score was negatively correlated with HDRS scale.

Brissos et al. (2008) examined the relationship between clinical and neuropsychological variables in euthymic bipolar, remitted schizophrenia and control. Bipolar patients demonstrated significantly lower score over control in WHOQOL bref scale score. Moreover, in Bipolar patients, both psychological and neurocognitive deficits were strongly correlated with lower QOL.

Bauwens et al. (2001) compared remitted bipolar, remitted unipolar and control matched for age and sex for estimating social adjustment. The unipolar and bipolar patients scored low in all areas of social adjustment

than control. Especially in bipolar there were social maladjustment partly due to lifetime episodes and current residual symptoms.

Yatham et al. (2004) determined the impact of the acute depression on QOL in bipolar patients. The mean subscales of SF-36 scores were significantly and inversely correlated ($P<0.0001$) with those scores of the HDRS. The study also suggested that both the unipolar and bipolar depression have detrimental but bipolar had worse QOL.

Namjoshi et al. (2004) demonstrated that bipolar patients receiving adjunctive therapy along with mood stabilizer had significantly greater improvements both clinical and QOL. These patients' clinical outcomes were measured by the YMRS and HDRS scales. The changes in the QOL scores were strongly correlated to YMRS and HDRS scores.

de Abreu et al.(2012) conducted a study to find out an association between suicidal behaviour and QOL in bipolar patients. The authors used the WHOQOL Bref scale, HDRS and YMRS for evaluation of QOL. Patients with Bipolar Disorder had significantly lower QOL scores on all the four domains and these poor coping skills might be the reason for the suicidal behaviour.

2.4 Rating scales score on QOL

2.4.1 HDRS

Sierra et al. (2005) used SF-36, CARS-M and HDRS scales to evaluate the QOL in bipolar patients. All the subscales score in SF-36 were negatively correlated with HDRS and a significant ($P<0.01$) negative correlation was observed in mental health (-0.493) and general health (-0.604).

MacQueen et al. (1997) estimated the differences between psychotic and non-psychotic in terms of QOL using HDRS, YMRS and SF-20 scales. The results showed that though psychotic mania developed earlier which did not affect the social functioning as the scores between scales were not significant.

Yatham et al. (2004) found lower QOL score estimated with SF-36 in all the domains and they also observed the QOL score was significantly negatively correlated with HDRS scale scores.

Bauwens et al. (2001) compared remitted bipolar, remitted unipolar and control matched for age and sex for estimating social adjustment. Especially in bipolar there were social maladjustment partly due to lifetime episodes and current residual symptoms.

Dias et al. (2008) reported that depressive symptoms were the significant predictors of physical, psychological and environmental domain

of WHOQOL. The study also suggested that depressive symptoms even with low intensity were strong predictors of QOL in euthymic patients with Bipolar disorder.

Gutie´rrez-Rojas et al. (2008) reported that Health Related Quality of Life (HRQOL) was lower in bipolar patients especially in physical components secondary to substance abuse compared to general population. They further found that mental health was impaired in patients with depressive symptoms. In addition, patients whose onset of Bipolar Disorder occurred before the age of 20 suffered the lowest HRQOL.

Zhang et al. (2006) confirmed in a study that depressive symptoms were strong predictors for the impaired health related QOL as proved by the lowest score in SF-36 compared to euthymia and general population.

2.4.2 YMRS

Safer et al. (2012) in a study used YMRS to compare symptoms severity in bipolar disorder to identify age-grouped differences. The preadolescent bipolar patients had significantly higher YMRS rating scores.

Gazalle et al. (2006) evaluated the influence of maniac symptoms on the QOL in bipolar patients using Young Mania Rating Scale (YMRS) and WHOQOL-Bref scale. There was inverse association of maniac symptoms

with physical, psychological, social and environmental domains of WHOQOL in an adjusted analysis. Similarly, in another analysis with the YMRS items, items 4 and 5 were correlated with low QOL.

In a recent study by Saarni et al. (2010) compared the loss of subjective health related QOL in chronic psychiatric disorders. It was observed that QOL was lowest in schizophrenia followed by the Bipolar Disorder type I.

Bipolar patients had lower QOL than general population and this impairment could be comparable to non-mental health related medical conditions. Even after recovery, these patients continued to score less on QOL assessment scale indicating that functional recovery delayed (Keck et al., 1995).

2.4.3 Life events

Ellicot (1990) examined the impact of life stress on the Bipolar Disorder in 61 outpatients units over a period of two years. The patients were monitored for stressful life events, levels of medication and compliance of the treatments regimens. The study predicted that a significant association between life events and recurrence of the disorder.

Basu et al. (2001) recorded a significant positive correlation of life events occurred in the previous year with HDRS score. However, the life events score did not correlate with other variables.

Jhonson et al. (2008) prospectively examined the role of negative life events as predictors of the course of Bipolar Disorder. The changes in the symptoms were evaluated with HDRS scale. Negative life events increased the depressive symptoms and the authors suggested that negative life events were to be considered in the course of the illness.

Functional recovery from the Bipolar Disorder helps patients to re-establish premorbid levels. To identify the predictors for the functional recovery Leslie Yan-Meier (2011) assessed stressful life events as predictors in delaying the functional recovery. The result identified that delay in the functional recovery was associated with the presence of one or more stressful life events prior to 3 months even after controlling the symptoms. They further suggested that presence of stressor took long time to recover up to 112 days in work.

Watson et al. (2004) conducted experiments to measure the responses of hypothalamic-pituitary-adrenal axis to the combined dexamthasone and corticotrophin releasing hormone. The test was abnormal both in remitted and non-remitted patients with bipolar disorder and this dysfunction was ascribed as potential marker and possibly as core pathophysiological process in this illness.

2.4.4 Hassles scale

The average bipolar patient reported four daily hassles (4.24 ±4.72, range: 0–25), at an intensity score of 1 (1.00± 0.69, range: 0–25) and a total severity score of 4.7 (4.70±5.99, range: 0–25). The Hassles severity score explained variance by about 11.3, 11.2 and 13.9 per cent on the total score, psychological and environmental domain scores of the WHOQOL scale (Chand et al. 2004).

Havermans et al. (2010) observed that presence of subsyndromal symptoms in bipolar remitted patients increased the sensitivity of the patients to the everyday stressors (hassles). Multilevel regression analyses confirmed that mean levels of negative affect (NA) were higher and positive affect (PA) lower in bipolar remitted patients.

Basu et al. (2001) found a significant positive correlation of life events with HDRS score in sixty-eight patients under remission. Daily hassles were able to explain variance of 20 out of 22.99 per cent when HDRS score was taken as dependable variable.

2.4.5 Perceived social support on QOL

Basu et al. (2001) estimated 55.16 score from social support questionnaire from the sixty-eight bipolar remitted patients and found negative correlation with Brief Psychiatric Rating Scale but not with HDRS score. This study revealed that lower the social support higher the

psychopathology in the bipolar remitted patient and no relation was found with depressive symptoms.

Gutie´rrez-Rojas et al. (2005) evaluated 108 bipolar patients against 1200 control for the health related QOL and found that bipolar patients had low physical and mental scores. It was further impaired in those with depressive symptoms. In addition, in those Bipolar Disorder occurred before 20 years of age suffered the lowest the QOL. However, high level of family support improved QOL.

2.5 QOL of Bipolar Disorder patients with comorbid medical illness / substance use

In a review article on the potential causes and magnitude of HRQOL impairment and treatment interventions in QOL restoring in the bipolar patients Ishak et al. (2012) stated that HRQOL was adversely affected in bipolar patients and the presence of comorbid conditions worsened the score heavily in bipolar patients.

Kilbourne et al. (2009) assessed the changes in HRQOL in bipolar patients with co-occurring substance use. Presence of co-occurring substance use and medical comorbidities negatively affected the QOL independent of bipolar symptoms. Therefore, interventions that address physical well-being and treatment were needed.

Dean et al. (2004) screened 65 health related QOL articles and instruments used for the QOL evaluation and cost of the treatment. Among

them, bipolar patients scored lower compared to other illnesses. Moreover, Bipolar Disorder imposed tremendous burden on the cost of the treatment than other conditions and suggested that better management improve can improve functioning and cost of the treatment.

2.6 Cognitive impairment in remitted bipolar patients

Brissos et al. (2008) examined the relationship between clinical and neuropsychological variables in euthymic bipolar, remitted schizophrenia and control. Bipolar patients demonstrated significantly lower score over control in WHOQOL-bref scale score. Moreover, in bipolar patients, both psychological and neurocognitive deficits were strongly correlated with lower QOL.

Euthymic bipolar patients had reduced cognitive functions which resulted in poor social outcome (Burdick et al., 2010).

Kolur et al. (2006) assessed sustained attention and executive functioning of the euthymic Bipolar Disorder in young people. Bipolar group had impairment in task of attention. Multivariate analysis demonstrated that deficits in executive functioning from that of control. Deficits of attention and cognitive functioning were more in people with less number of episodes.

Trivedi et al. (2007) attempted to find out cognitive deficits in Bipolar Disorder after the subsidence of active symptoms. There was a significant difference on executive functions between bipolar and control.

2.7 Psychoeducation and Rehabilitation for improving QOL

Michalak et al. (2005) assessed the impact of a time limited psychoeducation of 8 weeks duration upon perceived QOL among bipolar patients with Quality of life Enjoyment and Satisfaction questionnaire (Q-LES-Q). Bipolar patients showed impaired QOL even when they were in euthymic state. They further stressed that Bipolar Disorder should be studied for the effects of treatment intervention on perceived QOL.

Some interventions in the form of psychotherapy may reduce the recurrences of the episodes in Bipolar Disorder. However, there is a lack of well structured, blinded, well designed studies regarding reduction in recurrences through psychoeducation. Francesco et al. (2003) conducted 21 meetings of psychoeducation and 21 non-structured meetings with bipolar patients under remission. They found psychoeducation significantly lowered the number of relapses, recurrences and increased the time to get depressive symptoms. The authors concluded that psychoeducation was efficacious in the bipolar patients maintained on the pharmacologic treatment.

Frank et al. (2005) compared Inter Personal and Social Rhythm Therapy (IPSRT) and an Intensive Clinical Management (ICM) approach in the bipolar treatment. There was no difference between treatment strategies. Participants in the IPSRT survived longer without a new affective episode irrespective of the maintenance treatment. Interpersonal and Social Rhythm Therapy appeared to support in the management of Bipolar Disorder.

Bernhard et al. (2006) conducted cognitive- psychoeducational group therapy for 60 bipolar patients and their relatives who received two psychoeducational workshops of four hours each. The authors observed that psychoeducational interventions in bipolar patients and their relatives improved their knowledge of the illness and burden of the disorder up to one year follow-up.

Batista et al. (2011) reported that psychoeducation showed positive results in decreasing relapse rate and improved long time treatment adherence in bipolar patients. Moreover, psychoeducation enhanced the knowledge of the illness both in caregivers and patients which reduced the distress of the patients and overall social functioning.

Scott et al. (2007) in a meta-analysis study related to the controlled randomized trials with psychological therapies added to standard treatment and standard treatment only to explore the relapse rate in Bipolar Disorder.

They found that therapies were effective in preventing relapse rate in euthymic subjects. Efficacy studies demonstrated that adjunctive psychological treatments for patients with Bipolar Disorder reduced the relapse rate. It was concluded that effectiveness studies should be individualised to get more benefit.

3.HYPOTHESES

The Bipolar disorder patients under remission would have poor QOL with the following conditions

1. Patients with more number of episodes
2. Patients with long duration of illness
3. Patients experiencing more stressful life events
4. Patients experiencing higher hassles score
5. Patients with less social support
6. Patients currently experiencing depressive symptoms

4. MATERIALS AND METHODS

Setting

The study was carried out in the Department of Psychiatry, Thanjavur Medical College, Thanjavur, a tertiary referral centre, catering a population of seven districts. The necessary prior approval from the Institutional Ethics Committee, Thanjavur Medical College, Thanjavur was obtained for the conduct of the study.

4.1 Period of study

The study was conducted during a period of six months from May 2012 to October 2012.

4.2 Research design

Case control study

The study was an evaluation of quality of life of the fifty numbers of bipolar patients under remission and fifty numbers of age/sex matched healthy persons (control) without any psychiatric illnesses selected from individuals who made a visit to referral centre for inquiring good will of the patients.

4.2.1 Inclusion criteria

1. Patients with bipolar disorder under remission attending the psychiatricB outpatient unit for regular follow up.

2. Age 20 to 60 years were selected

3. Willing to give consent for participation in the study

4.2.2 Exclusion criteria

1. Patients with other comorbid mental illnesses
2. Substance use in dependence level during the previous three months
3. Patients with comorbid medical and surgical illnesses
4. Age less than 20 and more than 60 years
5. Patients not willing to participate in the study

4.2.3 Operational design

Patients with diagnosis of Bipolar Disorder attending outpatient unit with reliable attender for regular follow up were selected. Only those patients who were ready and willing to take up the interview were included for the study. The patients were well informed that there may not be any immediate benefit in any form following the interview. After obtaining the consent, interview was held in a single setting. Hamilton Rating Scale for depression

(HAM-D) and Young Mania Rating Scale (YMRS) were applied to ensure that the patients were in remission. Relevant information was also obtained from caregivers and from patients medical records. Fifty such patients were interviewed in detail.

Fifty numbers of age/sex matched healthy persons were taken up as controls after administering the General Health Questionnaire (GHQ) to ensure that there is no psychiatric illness.

4.3 Tools used in the study

1. Semi structured proforma
2. General Health Questionnaire(GHQ)
3. Hamilton Rating Scale for Depression (HAM-D)
4. Young Mania Rating Scale(YMRS)
5. World Health Organization Quality of Life Scale(WHOQOL-Bref scale)
6. Presumptive Stressful Life Events Scale (PSLES)
7. Daily Hassles scale
8. Multidimensional Scale of Perceived Social Support (MSPSS)

4.3.1 Semi structured proforma

A semi structured proforma was used to collect relevant sociodemographic information (age, sex, education, marital status, religion etc.,) and relevant clinical information (age at onset, number of episodes, duration of illness, physical illness, medications and substance use).

4.3.2 General Health Questionnaire

General health questionnaire (GHQ) contains 28 items that have been divided into four subscales, each containing seven items viz. A – Somatic symptoms; B-Anxiety / insomnia; C- Social dysfunction; D- Severe depression.

The GHQ- 28 is the most known and popular version of the GHQ. It is employed to detect psychiatric disorders in the general population and also within the community on non-psychiatric clinical settings such as primary care or general medical outpatients.

4.3.3 WHOQOL-Bref scale

The WHOQOL-Bref contains 26 items. This scale was developed from the larger WHOQOL-100 data sets available from all WHOQOL centers to the Geneva coordinating centre. Like the WHOQOL-100, all the items in the WHOQOL-Bref are rated on a 5-point scale (WHO, 1996). There are four

domains in WHOQOL-Bref. All of the four domains are sensitive to both the health status of respondents, and changes in the health status following treatment. All the four domains have demonstrated good internal consistency and excellent test-retest reliability. The physical and psychological domains in particular demonstrated good construct validity.

4.3.4 Presumptive Stressful Life Events Scale

Presumptive Stressful Life Events Scale (PSLES) consists of 51 life events (Gurmeet Singh *et al*, 1981). It is based on the Social Readjustment Rating scale structured by Holmes and Rahe (1967), which consists of 43 items or life events. This scale is especially prepared for the adult Indian population. It assesses the total number of life events experienced in life time, in the past one-year, frequency of occurrence of different life events and quantitative estimate of presumptive stress of each of the life events. In general, an average adult person experiences ten common stressful life events in life time without suffering any obvious adverse physical or psychological problems in our population. Similarly, mean number of stressful events experienced in a year without producing any physical or mental illness is approximately two. In this study the patients were assessed if they had experienced any life event from the 51 items in the last one year prior to their

inclusion in the study. Each life event was rated as present or absent. The Test-Retest reliability for the scale was found to be 0.73.

4.3.5. Hamilton Rating Scale for Depression

First introduced by Max Hamilton in 1960, since then it has become the most widely used and accepted outcome measure for evaluating the severity of depression. The Hamilton Rating Scale for Depression (HAM-D) is a 21-item scale that evaluates depressed mood, somatic and cognitive symptoms of depression, and comorbid anxiety symptoms. It provides ratings on current DSM-IV symptoms of major depression, with the exceptions of hypersomnia, increased appetite, and concentration / indecision. The 17-items are rated on either a 5-point (0-4) or a 3-point (0-2) scale. In general, the 5-point scale items use a rating of 0 =absent; 1 = doubtful to mild; 2 = mild to moderate; 3 = moderate to severe; 4 =very severe. A rating of 4 is usually reserved for extreme symptoms. The 3-point scale items used a rating of 0 =absent; 1 = probable or mild; 2 = definite.

The HAM-D was one of the first rating scales developed to quantify the severity of depressive symptomatology. Validity is good based on correlation with other depression symptom measures.

4.3.6 Multidimensional Scale of Perceived Social Support

The Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet,1988) was developed as a scale which is simple to use, brief in nature. It is helpful to evaluate the subjective assessment of adequate social support from 3 specific sources. Its simplicity makes it suitable for psychiatric and normal subjects who are not familiar with testing. The subscale structure included in the scale are perceived social support from 3 sources, family, friends & significant others. The internal consistency of the total scales & subscales are found to be high in various samples, ranging from 0.79 – 0.98. It is free of social desirability bias and ideal for research assessment of multiple variables.

4.3.7 Young Mania Rating Scale

Young Mania Rating Scale (YMRS) was used to evaluate changes in manic symptoms with treatment or over time and also used to detect a return of manic symptoms. It consists of 11 items and are ranked on a scale of 0 to 4 (7 items) or 0-8 (4 items) (Young et al., 1978). Reliability is good based on internal reliability and consistency studies.

4.3.8 Daily Hassles Scale

The Hassles scale was used to estimate the number of daily hassles occurring to an individual person during the preceding one month in terms of frequency, severity and intensity (Kanner et al., 1981). The scale has 117 items and rating was carried out on a point of 1-3. The frequency is the simple count of items ticked by the subjects (ranged from 0-117), severity is the sum of average of 3-point ratings (ranged from 0-351) and intensity was calculated by severity divided by frequency ranged from 0-3.

4.4 Statistical analysis

All the data collected were subjected to test the significance, correlation and regression analysis. The regression analysis was carried out to find out the contribution of demographic and clinical variables towards the quality of life in bipolar disorder patients under remission with SPSS software version 17 and results were interpreted for the significance.

5. RESULTS

The result of sociodemographic status and quality of life assessed in bipolar patients under remission with various rating and self- administered scales are presented.

5.1 Sociodemographic profile

The results of the sociodemographic profile of the bipolar remitted patients and control group is presented in Table 1.

5.1.1 Age

The average age for the bipolar patients was 46.5 and 32.5 years for the males and females respectively and it was 44.5 and 31.5 years for the males and females in the control group.

5.1.2 Sex

There were 62 and 38 per cent of the patients evaluated with nearly matched percentage of 64 and 36 for the males and females respectively in the control.

5.1.3 Marital status

Married individuals constituted higher number in the patients (64%) while single and widow group had lower percentage (36%).

Table 1

Mean sociodemographic variables of the patients and control

Variables, n (%)		Patients	Control
Age	Male	46.5	44.5
	Female	32.5	31.5
Sex	Male	31 (62)	32(64)
	Female	19 (38)	18 (36)
Marital status	Single	5 (10)	7 (14)
	Married	32 (64)	34 (68)
	Separated / divorced	8 (16)	6 (12)
	Widow	5 (10)	6 (12)
Education	Up to 5^{th} std	8 (16)	5 (10)
	SSLC	25 (50)	23 (46)
	+ 2	12 (24)	11 (22)
	Degree	5 (10)	7 (14)
Religion	Hindus	41 (82)	43 (86)
	Christians	4 (8)	4 (8)
	Muslims	5 (10)	3 (6)
Income / month	< 2000	5(10)	11(22)
	2000-4000	31(62)	28 (56)
	> 4000	11 (22)	21 (42)
Type of family	Joint	18 (36)	24 (48)
	Nuclear	41(82)	38(76)
Domicile	Rural	41(82)	38(76)
	Semi-urban	6(12)	8(16)
	Urban	3(6)	4(8)

5.1.4 Education status

Majority of bipolar patients in the present study studied SSLC (50%) followed by plus 2 (24%) and 5^{th} standard (16%). The patients in the degree category were lower (10%). A similar pattern of educational status was estimated in control.

5.1.5 Religion

Bipolar patients were seen more in the Hindus followed by Muslims and Christians in the present study.

5.1.6 Income

Regarding monthly income only 22 per cent of the bipolar patients earned more than 4000 rupees in a month whereas it was almost double in the control group. Two-third patients (62%) were in the income group of rupees 2000-4000.

5.1.7 Type of family

Of the 50 bipolar patients, 82% was in the nuclear family type and rest in the joint family category (18%).

5.1.8 Domicile

Patients were mainly from rural (82%) and semi-urban (12%) and urban (6%).

5.2 Mean clinical variables and rating scale scores in bipolar patients and control

The mean clinical variables estimated from the clinical variables and rating scale scores for the patients and control is presented in Table 2. The same variables and scale scores for the male and females are presented in Table 3 for assessing variation if any in gender scores.

5.2.1 Duration of illness

There was no significant difference for the duration of illness in years for bipolar remitted male (11.9) and female (10.1) patients. A mean of 12.22 years was observed in remitted patients of both the sexes.

5.2.2 Age at onset

A highly significant gender difference in the age at onset of the bipolar disorder was observed with the mean age of 26.9 and 22.8 years for the males and females respectively. The mean age at onset for the both sexes was 25.4 years.

Table 2

Mean (±SE) clinical variables and rating scales score of bipolar patients and control subjects

Subjects	Duration of illness in years	Age at onset	No. of episodes	PSLES		Hassles score		
				LE in last year	LE Score	Frequency	Severity	Intensity
Patients	12.22 ±1.08	25.4 ±0.9	5.8 ±0.5	2.04 ±0.21	96.98 ±9.49	38.98 ±2.45	76.6 ±5.53	1.92 ±0.04
Control	-	-	--	1.18 ±0.22	54.95 ±10.5	22.50 ±1.60	32.18 ±2.20	1.49 ±0.08

Table 2 contd...

Subjects	HDRS	YMRS	WHOQOL- Bref				MSPSS
			Physical	Psycho logical	Social	Environ -ment	
Patients	2.38 ±0.19	0.58 ±0.08	20.22 ±0.33	14.14 ±0.41	9.56 ±0.17	26.38 ±0.31	27.38 ±0.58
Control	--	--	26.27 ±0.57	24.09 ±0.47	12.73 ±0.27	32.50 ±0.58	29.5 ±1.31

5.2.3 Number of episodes

Number of episodes between males and females did not show variation and a mean of 5.8 was recorded for both sexes.

5.2.4 Life events and life events score

Life events occurred past one year and life events score obtained for the males and females did not exhibit any variation. The average number of life events for patients and control was 2.04 and 1.18 respectively and life events score was 96.98 and 54.95 for the patients and control respectively.

5.2.5 Hassles scale score

There were no gender variation in the frequency, severity and intensity of Hassles scale score. However, females had numerical increase in the severity score compared to males. The Hassles intensity score for bipolar patients and control was 1.92 and 1.49 respectively (Table 3).

Table 3

Mean (±SE) clinical variables and rating scales scores of male and female bipolar remitted patients

Sex	Duration of illness	Age at onset	No. of episodes	No. Life events 1 year	Life events score	Hassles		
						Frequency	Severity	Intensity
Male	11.90 ±1.0	26.9 ±0.9	5.8 ±0.6	2.0 ±0.3	94.4 ±10.9	37.0 ±2.8	70.9 ±5.8	1.9 ±0.1
Female	10.1 0±1.0	22.8 ±0.2	5.3 ±0.9	2.1 ±0.5	103.6 ±20.5	45.1 ±4.9	94.7 ±14.4	2.0 ±0.1
P value	0.43	0.06	0.78	0.85	0.78	0.31	0.20	0.67

Table 3 contd..

Sex	HDRS	YMRS	WHOQOL Score				MSPSS
			Physical	Psychological	Social	Environment	
Male	1.9 ±0.1	0.7 ±0.1	21.0 ±0.3	14.8 ±0.5	9.8 ±0.2	26.8 ±0.40	28.2 ±0.6
Female	2. 8 ±0.4	0.3 ±0.2	17.3 ±0.6	11.7 ±0.4	8.9 ±0.3	25.0 ±0.40	24.2 ±0.1
P value	0.00	0.09	0.00	0.00	0.03	0.03	0.011

5.2.6 HDRS score

There was remarkable difference in the HDRS score between the genders observed with 2.8 for females compared to 1.9 in the males. A mean of 2.38 was estimated for both the sexes.

5.2.7 YMRS score

The YMRS score did not yield any variation for the males and females though females had 0.3 than 0.7 in males.

5.2.8 WHOQOL- Bref Scale score

All the four domain score between males and females differed significantly. The per cent reduction of physical, psychological, social and environmental domain scores of WHOQOL-bref scale from the expected score was 40.07, 50.67, 35.00, 33.13 and 50.48, 61.11, 40.74 and 37.50 for the males and females respectively (Table 3). Among the domains, psychological score was lower (11.7) in case of females compared to males (14.8).

5.2.9 MSPSS score

Regarding MSPSS score, females (24.2) received significantly less support than males (28.2) by about four points. The MSPSS score between bipolar patients and control was 27.3 and 29.5 respectively and it was non-significant.

5.3. WHOQOL total score between bipolar patients and control

The overall mean QOL scores obtained from the bipolar remitted patients and control (Table 4) revealed that the QOL was significantly reduced by 23.03, 41.30, 24.84 and 18.83 per cent in physical, psychological, social and environmental domains respectively. Among the domains, psychological domain was the most affected in the patients.

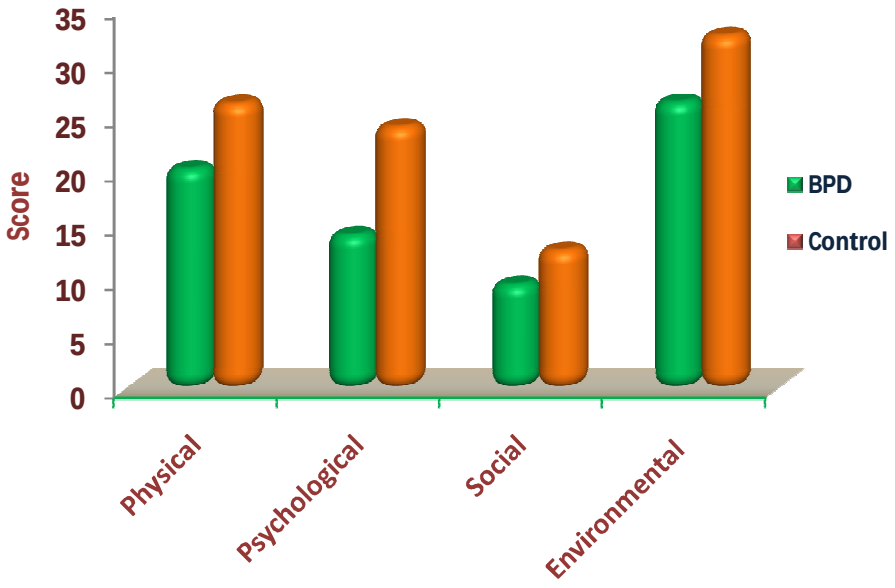
Table 4

Mean (±SE) score for WHO-QOL-Bref scale

between bipolar patients and control

Domain	Patients	Control	P value	% reduction of patients score over control subjects
Physical	20.22±0.33	26.27±0.57	0.01	23.03
Psychological	14.14±0.41	24.09±0.47	0.01	41.30
Social	09.56±0.17	12.72±0.27	0.02	24.84
Environmental	26.38±0.31	32.50±0.58	0.03	18.83

Figure 4. Mean (±SE) score for WHOQOL-Bref scale between patients and control



5.4 Correlation between independent variables and QOL domains

5.4.1 Life events preceding one year and life events score

When data analysed for the life events occurred less than 2 and more than 2 in the preceding year, the average number of events was 1.20 and 3.93 (Table 5).

Table 5

Mean (±SE) values for life events ≤2 and >2, and life events score ≤110 and >110 score in bipolar remitted patients

Life events ≤2	Life events >2	Life events score ≤110	Life events score >110
1.20 ± 0.12	3.93 ±0.30	62.03±6.46	174.53± 14.09

Figure 1a. Mean (±SE) values for life events ≤2 and >2 in bipolar remitted patients

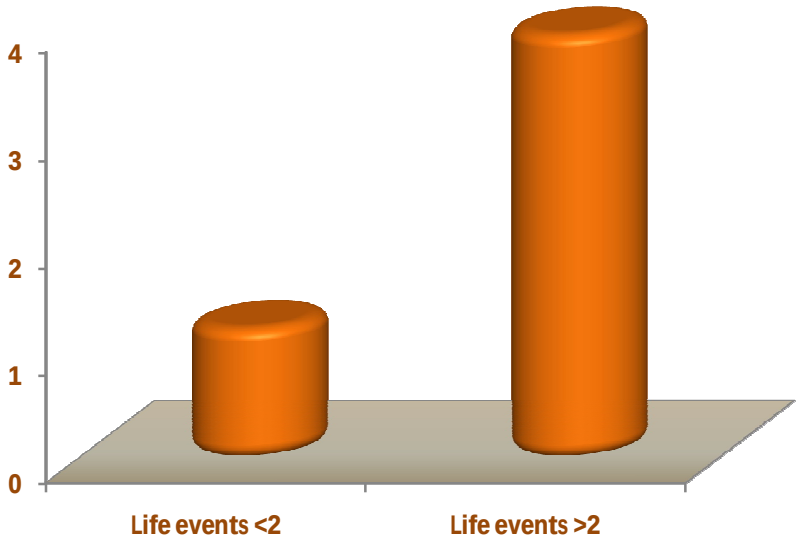
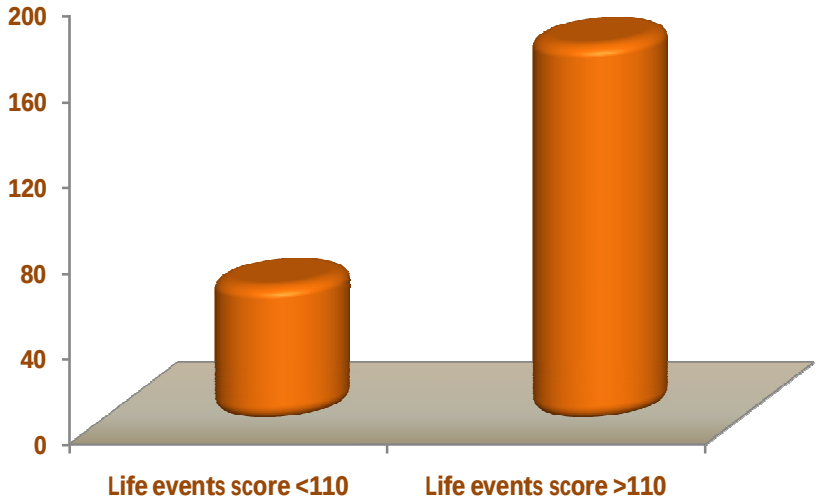


Figure 1b. Mean (±SE) values for life events score ≤110 and >110 score in bipolar remitted patients



Similarly, the average life events score as 62.02 and 174.5 for the total score less than 110 and more than110 respectively. The number of life events on the QOL score did not influence significantly both at less than 2 and more than 2 events in the preceding year.

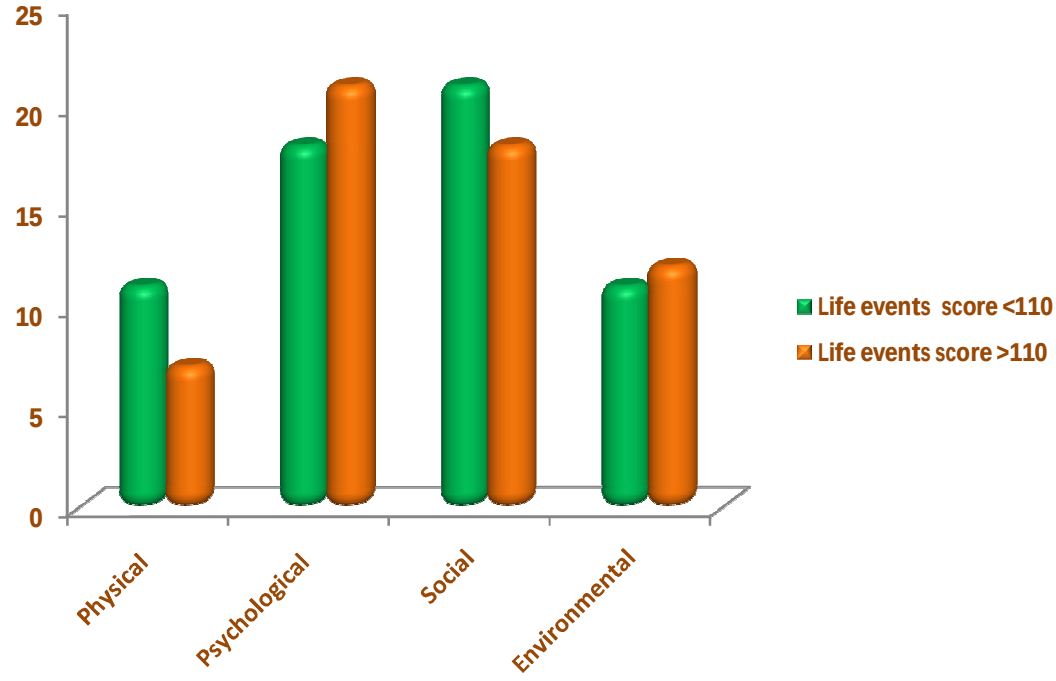
Table 6

Regression analysis for life events ≤2 and >2, and life events score ≤110 and >110 score in bipolar remitted patients

WHOQOL Bref domain	R	R^2	% variance explained	P value
Life events ≤2				
Physical	0.35	0.13	13.0	0.05
Psychological	0.42	0.17	17.0	0.10
Social	0.45	0.20	20.0	1.15
Environmental	0.26	0.07	7.0	0.14
Life events >2				
Physical	0.24	0.06	6.0	0.39
Psychological	0.05	0.00	0.0	0.99
Social	0.24	0.06	6.0	0.99
Environmental	0.38	0.15	15.0	0.16
Life events score ≤110				
Physical	0.33	0.11	11.0	0.06
Psychological	0.43	0.18	18.0	0.21
Social	0.45	0.21	21.0	1.15
Environmental	0.39	0.11	11.0	0.98
Life events score >110				
Physical	0.25	0.07	7.0	0.37
Psychological	0.48	0.21	21.0	0.01
Social	0.43	0.18	18.0	0.11
Environmental	0.23	0.12	12.0	0.65

On the contrary, total life score in the more than 110 category influenced psychological domain of the QOL scale significantly (R^2–0.21; p=0.014) and it did not influence on the other domains (Table 6).

Figure 2. Regression analysis for life events score ≤110 and >110 score in bipolar remitted patients



5.4.2 Number of episodes

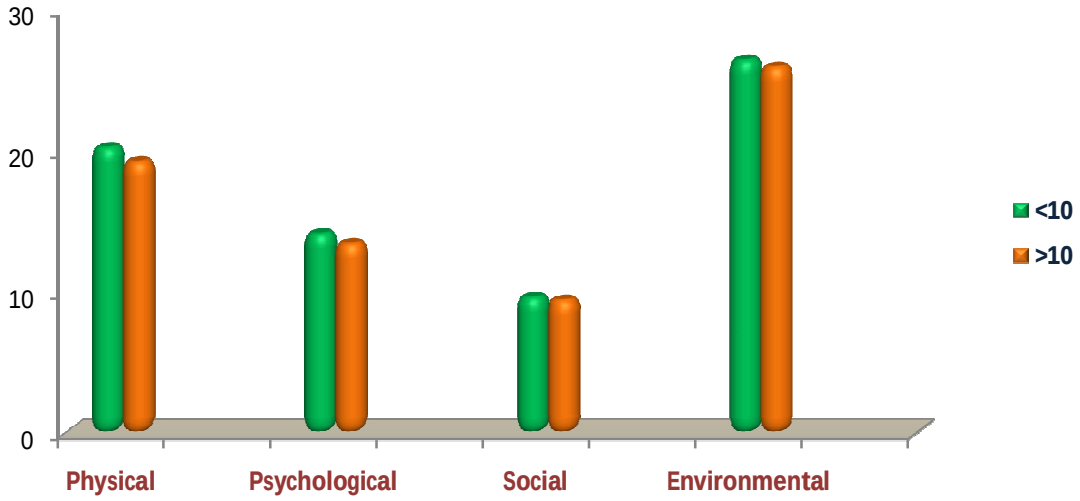
The comparison between mean number of episodes and QOL domains is presented in the Table 7 and QOL score with occurrence of less than 10 and more than 10 episodes did not vary in BPD remitted patients.

Table 7

Comparison between mean number of episodes (<10 and >10) and QOL domains in bipolar remitted patients

WHOQOL domain	Number of episodes (mean ± SE)		
	<10	>10	p
Physical	20.2± 5.8	19.2 ± 5.9	0.26
Psychological	14.1± 8.4	13.4 ± 6.8	0.51
Social	9.6 ±1.6	9.4± 2.5	0.81
Environmental	26.4 ± 5.1	25.9 ± 6.6	0.56

Figure 3. Influence of mean number of episodes (≤10 and >10) on the QOL domains in bipolar remitted patients



5.4.3 Contribution of MSPSS scores on WHOQOL domain scores in bipolar remitted patients

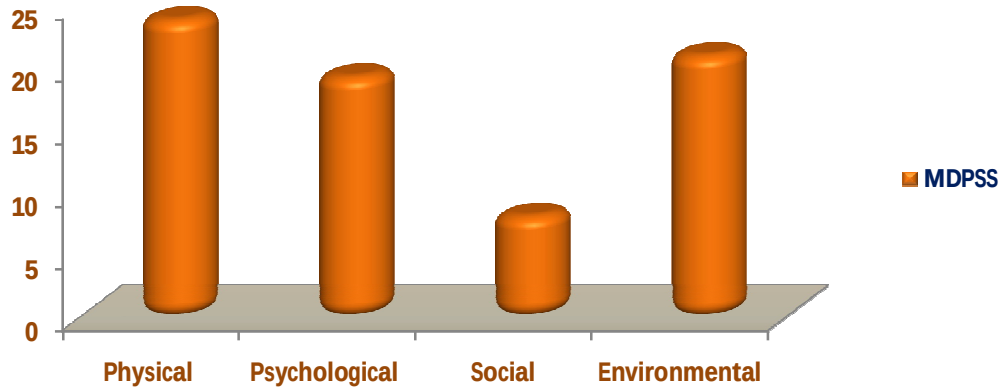
The regression analysis of MSPSS as independent variable and QOL scores of the bipolar remitted patients as dependant variable (Table 8) revealed that there was significant contribution of independent variable on the quality of life in the bipolar remitted patients. On the contrary, the QOL scores for the control was also declined from the maximum scores prescribed by the WHO, it was not significant.

Table 8
Contribution of MSPSS score as independent variable on the domains of WHOQOL-Bref scale in bipolar patients under remission

WHOQOL Bref domain	MSPSS			
	R	R^2	% variance explained	P value
Physical	0.488	0.238	23.8	0.000
Psychological	0.438	0.192	19.2	0.001
Social	0.284	0.080	08.0	0.045
Environmental	0.457	0.209	20.9	0.008

The per cent variance explained was 23.8, 19.2, 8.0 and 20.9 per cent for respective physical, psychological, social and environmental domains in the QOL scale indicating that higher variance for the physical domain was contributed by the MSPSS while least for the social domain.

Figure 5. Contribution of MSPSS score as independent variable on the domains of WHOQOL-Bref scale in bipolar patients under remission



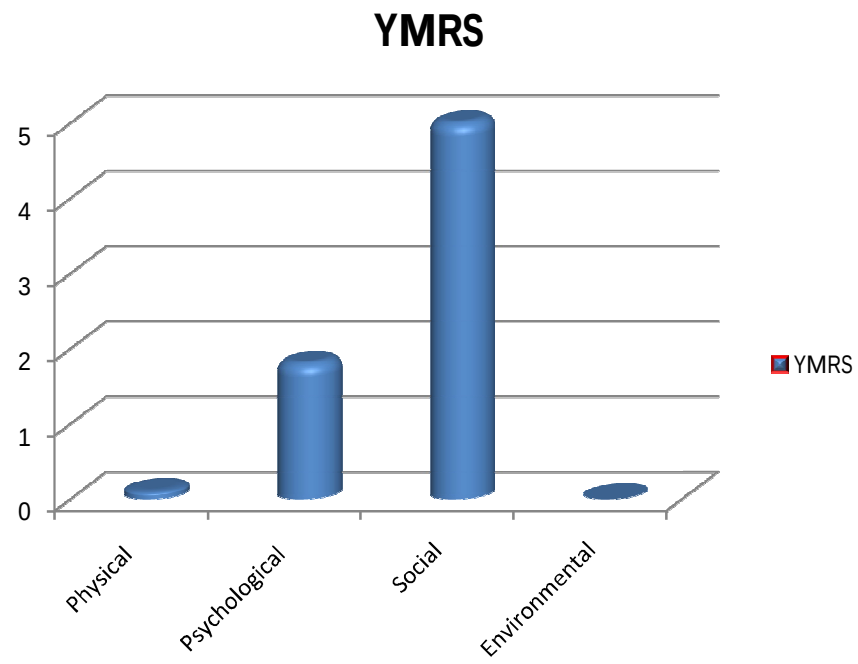
5.4.4 Contribution of YMRS score on the WHOQOL domains in bipolar remitted patients

The YMRS score did not influence the QOL in the bipolar remitted patients (Table 9).

Table 9
Contribution of YMRS score as independent variable on the domains of WHOQOL-Bref scale in bipolar subjects under remission

WHOQOL Bref domain	YMRS			
	R	R^2	% variance explained	P value
Physical	0.030	0.001	0.10	0.80
Psychological	0.140	0.018	1.80	0.34
Social	0.070	0.050	5.00	0.60
Environmental	0.030	0.000	0.00	0.83

Figure 6a. Contribution of YMRS score as independent variable on the domains of WHOQOL-Bref scale in bipolar subjects under remission



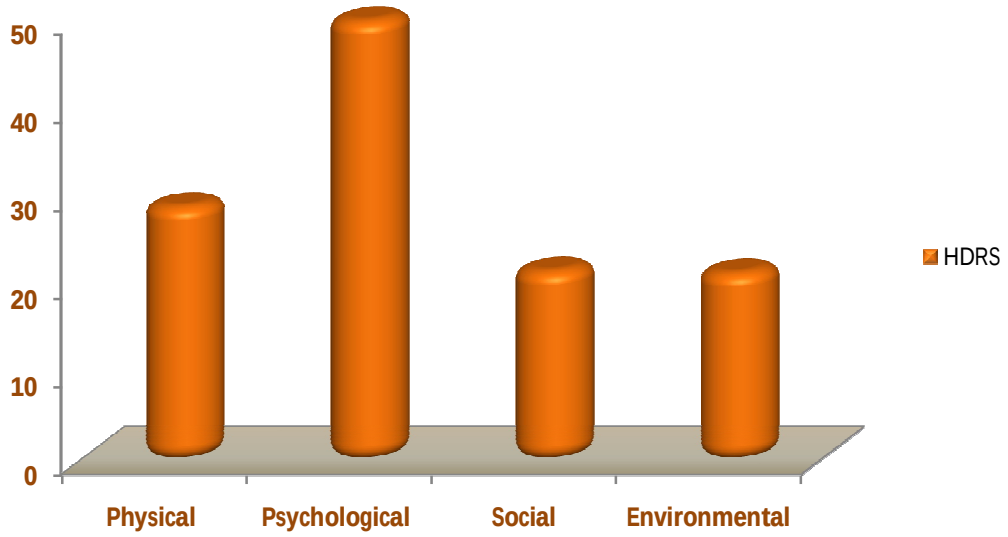
5.4.5 Contribution of HDRS scale scores on the WHOQOL domains in bipolar remitted patients

The HDRS score (Table 10) of the bipolar remitted patients was able to explain variance significantly ($p<0.01$) by 28.7, 49.8, 21.4 and 21.2 percent on the physical, psychological, social and environmental domains of QOL.

Table 10
Contribution of HDRS score as independent variable on the domains of WHOQOL-Bref scale in bipolar subjects under remission

WHOQOL Bref domain	HDRS			
	R	R^2	% variance explained	P value
Physical	0.535	0.287	28.7	0.00
Psychological	0.706	0.498	49.8	0.00
Social	0.463	0.214	21.4	0.00
Environmental	0.460	0.212	21.2	0.00

Figure 6b. Contribution of HDRS score as independent variable on the domains of WHOQOL-Bref scale in bipolar subjects under remission



5.4.6 Contribution of Hassles scale scores on the WHOQOL domains in bipolar remitted patients

The Hassles scale (Table 10) frequency explained 16.6 per cent variation observed in the physical domain of BPD remitted patients whereas it did not contribute to variation in other domains. The percent variance explained significantly by the Hassles severity was 23.1 and 12.5 per cent for the psychological and social domain scores. On the other hand, Hassles severity score did not cause any variation in physical and environmental domains.

Figure 7. Contribution of Hassles score as independent variable on the domains of WHOQOL-Bref scale in bipolar subjects under remission

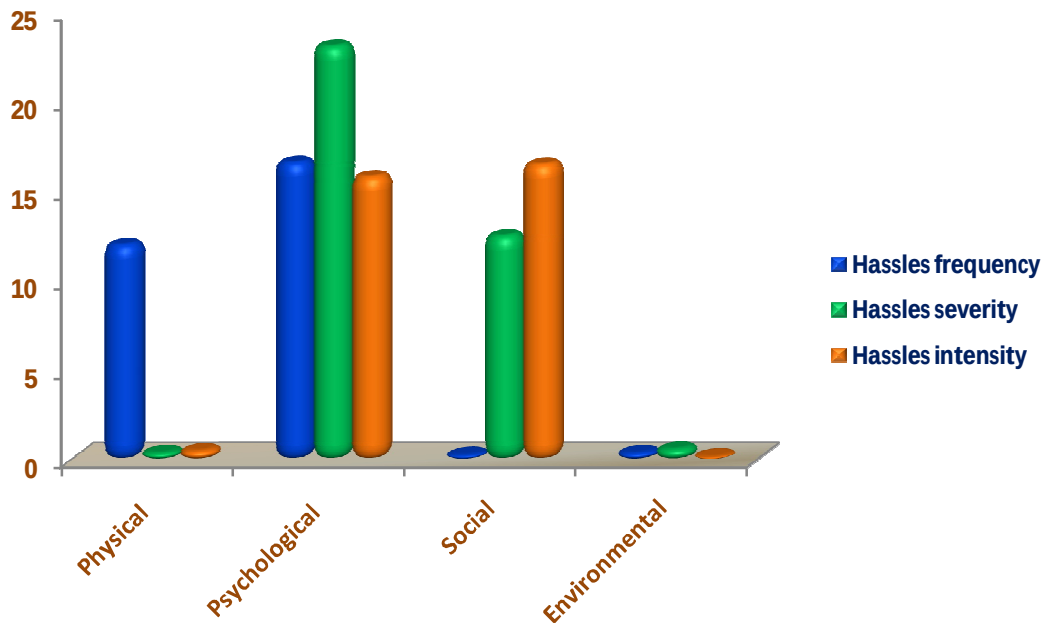


Table 11

Contribution of Hassles score as independent variable on the domains of WHOQOL-Bref scale in bipolar subjects under remission

Hassles frequency				
WHOQOL Bref domain	R	R^2	% variance explained	P value
Physical	0.110	0.012	1.20	0.44
Psychological	0.408	0.166	16.6	0.00
Social	0.250	0.03	3.00	0.07
Environmental	0.200	0.041	4.10	0.15
Hassles severity				
Physical	0.203	0.041	4.10	0.15
Psychological	0.481	0.231	23.1	0.00
Social	0.350	0.125	12.5	0.01
Environmental	0.257	0.066	6.6	0.07
Hassles intensity				
Physical	0.229	0.052	5.2	0.10
Psychological	0.397	0.158	15.8	0.00
Social	0.406	0.165	16.5	0.00
Environmental	0.169	0.028	2.8	0.23

Hassles intensity score (Table 11) was significantly contributed to the variation in the psychological and social domain score by about 15.8 and 16.5 per cent respectively. On physical and environmental domain it did not explain cause the variance significantly ($p<0.01$).

5.4.7 Contribution of age at onset and duration of illness on the WHOQOL domains in bipolar remitted patients

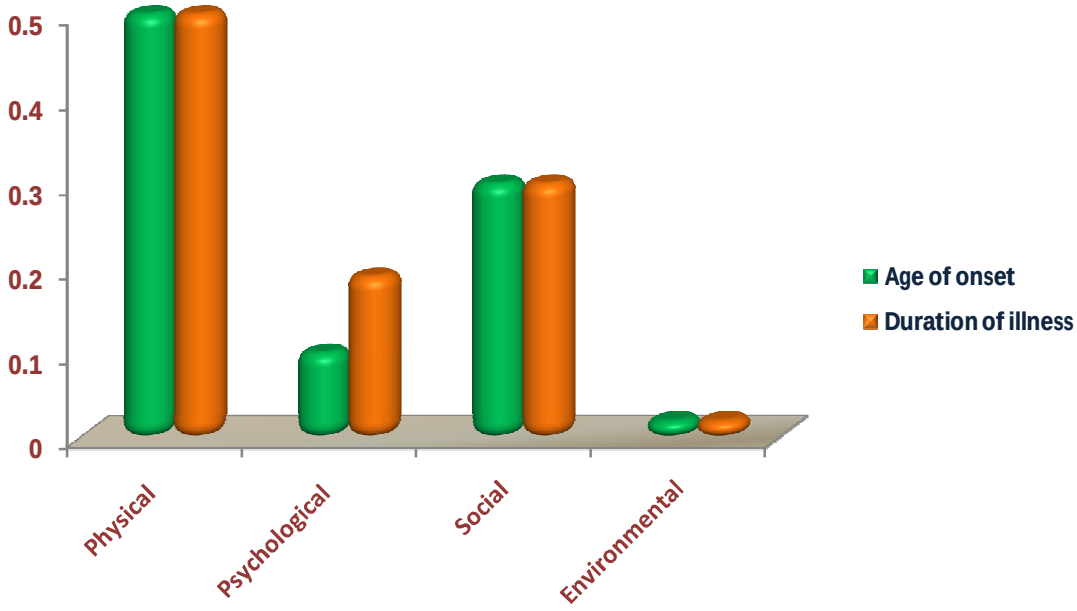
Regression analysis of age at onset and duration of illness as independent variables on the QOL scores as dependent variable of the patients did not explain any variance significantly (Table 12).

Table 12

Contribution of age at onset and duration of illness as independent variables on the domains of WHOQOL-Bref scale in bipolar subjects under remission

WHOQOL Bref domain	R	R^2	% variance explained	P value
Age at onset				
Physical	0.240	0.050	5.0	0.02
Psychological	0.140	0.019	1.9	0.24
Social	0.175	0.030	3.0	0.17
Environmental	0.041	0.002	0.2	0.30
Duration of illness				
Physical	0.240	0.050	5.00	0.08
Psychological	0.140	0.019	1.90	0.32
Social	0.175	0.030	3.00	0.22
Environmental	0.041	0.002	0.20	0.75

Figure 8. Contribution of age at onset and duration of illness as independent variables on the domains of WHOQOL-Bref scale in BD subjects under remission



5.5 Correlation analysis

Pearson correlation analysis was carried out to estimate the extent of correlation between rating scales and clinical variables is presented below.

5.5.1 Correlation between WHOQOL domains score with duration of illness, age at onset, life events, its score and number of episodes

The correlation between age at onset (Table 13) and QOL did not correlate. The life events last one year on social ($p<0.01$) and environmental ($p<0.05$), and life events score on all the other domains

except physical domain were correlated with QOL scores. Duration of illness and number of episodes were not significantly correlated with QOL scores. However, duration of illness and number of episodes produced negative correlation on the scores of WHOQOL-Bref scale domains of bipolar patients.

Table 13

Correlations of the WHOQOL-Bref scale scores with duration of illness, age at onset, life events, life events and number of episodes in bipolar remitted patients

S.No	WHOQOL domain	Duration of illness	Age at onset	No. of episode	Life events last one year	Life events score
1	Physical	-.243	.224	-.268	-.209	-.210
2	Psychological	-.140	.167	-.150	-.347	.363**
3	Social	-.176	.193	-.104	-.462**	.507**
4	Environmental	-.045	.147	-.052	-.360*	-.329*
Correlation is significant at the 0.05(*) and 0.01 (**) level (2-tailed)						

5.5.2 Correlation between WHOQOL domains score with Hassles, HDRS, MSPSS and YMRS scores

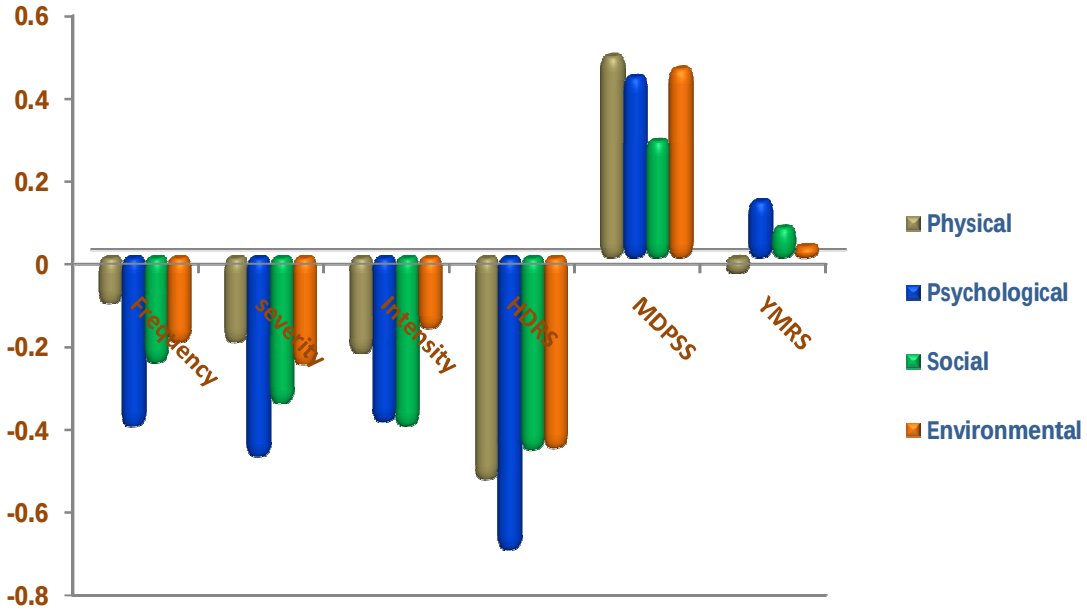
Among the scales, Hassles and HDRS score had significant ($p<0.01$) negative correlation on all the domains score. Among the domains, the psychological domain had a higher level of significant correlation with Hassles and HDRS scores. Though there was a negative correlation on the physical, YMRS did not cause correlation significantly on other domains (Table 14).

Table 14

Correlations of the WHOQOL-Bref scale scores with Hassles, HDRS and YMRS rating scales score in bipolar remitted patients

S.No	WHOQOL domain	Hassles			HDRS	MSPSS	YMRS
		Frequency	Severity	Intensity			
1	Physical	-.111	-.204	-.231	-.536**	.488**	-.037
2	Psychological	-.408**	-.481**	-.396**	-.706**	.438**	.138
3	Social	-.253	-.352*	-.407**	-.464**	.284*	.074
4	Environmental	-.204	-.258	-.171	-.460**	.458**	.029
Correlation is significant at the 0.05(*) and 0.01 (**) level (2-tailed)							

Figure 10. Correlations of the WHOQOL-Bref scale scores with Hassles, HDRS and YMRS rating scales score in Bipolar remitted patients



The MSPSS score had highly significant positive ($p<0.01$) correlation with all the domains of the QOL in the bipolar remitted patients indicating that bipolar patients had better social support.

6. DISCUSSION

The present study is a cross-sectional analysis of bipolar cases under remission. The cases were analysed with the controls matched for age, sex and other socio-demographic variables.

The bipolar cases under remission and controls were compared over various socio- demographic variables. The variables compared are age, sex, marital status, educational status, religion, income, domicile and type of family.

6.1 Socio demographic variables

6.1.1 Age

The average of age for the bipolar patients in our study was 46.5 and 32.5 years for the males and females respectively. This observation is in line with Chand et al. (2004), Sierra et al. (2005) and Di Marzo et al. (2006) reported average age for the patients in their study as 42.14, 45.14 and 48.36 years respectively.

6.1.2 Sex

The percentage of male and female in our study was 62 and 38 for the bipolar patients. In a study, Sierra et al. (2005) also reported 60 and 40 per cent as the distribution of cases for the gender implying that males constituted more numbers.

6.1.3 Marital status

There were 32 cases (64%) belonged to married category in the present study is in agreement with Kebede et al. (2005) who found higher risk of bipolar for the married compared to unmarried groups. Similarly, Goi (2009) found less time required for hospitalisation in bipolar patients with spouse. Chand et al. (2004) also reported 84 % of patients were married. These findings suggest that married individual are prone for bipolar disorder and on the other hand, presence of family support improves the QOL of patients.

6.1.4 Education

Half of the patients were passed 10^{th} standard in the study differs with Agarwal and Gurmeet Singh (1982) who reported 17 percent of their patients completed high school. Tsuchiya et al. (2004) found shorter educational history was a factor in bipolar patients. As the literacy rate is increasing every year, comparison may not be possible between education status and bipolar disorder.

6.1.5 Income

Only 22 per cent of the bipolar patients earned more than 4000 rupees in a month and two-third patients (62%) were in the income group

of rupees 2000-4000. This finding concurs with report of Chand et al. (2004) who recorded 52 per cent of the patients were low income group.

6.1.6 Type of family

Majority of the patients (82%) were from nuclear family in the study. This observation is in line with Basu et al. (2001) who reported 54 per cent of the subjects selected for correlating subsyndromal symptoms and functioning of bipolar patients stabilized on lithium were from joint or extended family. Similarly, Hema Tharoor et al. (2008) recorded 50% of the eythymic patients belonged to nuclear family in the study on recurrent depressive disorder with or without comorbid medical illness.

6.1.7 Domicile

Majority of the samples of our study were from rural (82%), semi-urban (12%) and urban (6%) indicating that rural people are attending the government hospitals as they are catering the needs of the poor people.

6.2 Mean clinical variables and rating scale scores in bipolar patients

6.2.1 Duration of illness

The duration of illness was 12.22 years for both the sexes and the years for bipolar disorder remitted male (11.9) and female (10.1) patients did not vary in our study indicates that there is no gender difference in the course of the Bipolar Disorder. This observation concurs with Peh and Tay

(2008) who found 2- 10 years as the duration of illness depending on the age groups.

6.2.2 Age at onset

The mean age of 27.2 and 23.8 years for the males and females recorded in the present study agrees with Peh and Tay (2008), Lee et al. (2010) and Carter et al. (2003) reported the age at onset for bipolar was 19-29 and 16.9-19.7 and less than 18 years respectively.

6.2.3 Number of episodes

The present study did not find any variation in number of episodes between males and females and a mean of 5.8 was observed for both sexes taken together. Number of episodes above 10 was strongly correlated with depression (Di Marzo et al.,2006). MacQueen et al. (2000) also concluded that outcome of the patients depended on the number of previous episodes.

6.2.4 Life events and life events score

The average number of life events was 2.04 for patients and 1.18 for the control in the present study revealed that life events occurred in last one year for control was almost half of the patients. This finding agrees with Gurmeet Singh et al. (1984) report of 1.9 and 1.62 events in preceding year for the males and females respectively and approximately 0.78 events for one year (Chand et al.,2004).

The life events score for the patients was 96.9 and it was 54.9 for the control. Nearly 50% higher score for the patients may be due to significant association between life events and recurrence of the disorder (Ellicot,1990) and significant positive correlation of life events occurred in the previous year with HDRS score (Basu et al.,2001).

6.2.5 Hassles scale score

Nearly three fourth of hassles intensity (1.49) of the control compared to patients (1.92) observed in the study explains that intensity score did not statistically increase in the bipolar remitted patients. The same trend was seen between males and females respectively. Our findings differs with the report of Chand et al. (2004) who observed hassles intensity score of 1 and severity score of 4.7 in bipolar patients under remission.

6.2.6 HDRS score

A significant reduction in the HDRS score between males and females was observed in our study. This reduction in the HDRS score was also reported by Sierra et al. (2005) and Yatham et al. (2004). They reported negative correlation of HDRS score with Bipolar Disorder and susceptibility to have depression was more in females than males.

6.2.7 YMRS score

The YMRS score for the males and females was 0.3 than 0.7 in our study is in agreement with the findings of Gazelle et al. (2006) and Safer et al. (2012) who found negative correlation with YMRS scale in the bipolar patients.

6.2.8 WHOQOL- Bref Scale score

The reduction in QOL score between bipolar patients under remission and control shows that the patients score depended on the various independent variables. The low QOL score in remitted patients concurs with Brissos et al. (2008) Bauwens et al. (2001) Namjoshi et al. (2004) and de Abreu et al.(2012). All these authors found low QOL in remitted patients.

6.2.9 MSPSS score

Regarding MSPSS score, females received significantly less support than males by about four points. However, the MSPSS score between bipolar patients and control was 27.3 and 29.5 respectively. This observation is similar to the findings of Gutie´rrez-Rojas et al. (2005). They found higher family and social support improved QOL in bipolar patients.

6.3 Contribution of independent variables on QOL in Bipolar disorder remitted patients

6.3.1 Age at onset

Regression analysis of age at onset on QOL did not explain any significant variance in bipolar patients. This finding of our study concurs with Sierra et al. (2005) that age at onset had no influence on the QOL and differs with Rosa et al. (2009) who reported older age significantly affected the QOL on a regression model.

6.3.2 Duration of illness

No significant variation was found in regression analysis for the duration of the illness in bipolar patients. Our findings are similar to Sierra et al. (2005) that the duration of illness not affected the scores of different domains on QOL scale. The duration of illness varied with age and did not explain any variance on the QOL (Peh and Tay, 2008).

6.3.3 Number of episodes

No variation in the QOL by the number of episodes observed in our study is in contradictory to the earlier studies by Swann et al. (1999) and MacQueen et al. (2000) found more number of episodes deteriorated QOL scores in euthymic patients. This observation of no effect of number of

episodes on the QOL may be due to inadequate data regarding past episodes.

6.3.4 HDRS scale score

Our study found that the HDRS scale was able to influence the QOL negatively and the significant correlation existed between of QOL and HDRS score. Many earlier studies have also identified HDRS score was one of the strong predictors of QOL in bipolar patients. Sierra et al. (2005) observed negative correlation of HDRS score with the QOL on the all subscales of SF-36. Similarly, Yatham et al. (2004) in SF-36 scale and Dias et al. (2008) in WHOQOL scale estimated the QOL in bipolar disorder remitted patients and found negative correlation of HDRS score and QOL.

6.3.5. Stressful Life events

A non significant influence of number of life events on QOL scale score is observed in this study. Life events score strongly influences psychological health of the patients which concurs with Johnson et al (2008) who reported that negative life events increase depressive symptoms and influence the course of the illness.

6.3.6 Hassles scale score

The psychological domain score was significantly ($p<0.01$) affected by the hassles frequency, severity and intensity. Our study coincides with the report of Chand et al. (2004) who found 11-13 per cent variance explained by the hassles score on the psychological and environmental domain scores of the WHOQOL scale. Daily hassles were able to explain the variance of 20 out of 22.99 per cent when HDRS score was taken as dependable variable (Basu et al. 2001).

6.3.7 MSPSS

The MSPSS score had highly significant regression values on the domains of WHOQOL in remitted bipolar patients. The contribution of MSPSS on the well-being or QOL of the remitted patients were also observed by Basu et al. (2001) and Gutie´rrez-Rojas et al. (2005) who found higher family support to the patients improved QOL.

6.4. Correlation analysis

A highly significant negative correlation of HDRS and Hassles scores on all the domains of WHOQOL observed in our study is similar to the earlier reports. Vojta et al. (2001) recorded less impairment in HRQOL in euthymic patients. In another study, Dias et al. (2008) found even in low intensity of depressive symptoms was sufficient to be a strong predictor of physical, psychological and environmental HRQOL.

Gazelle et al. (2006) found negative correlation in all the domains of WHOQOL scale with HDRS score. Similarly, Brisso et al. (2008) also demonstrated significant lower score in bipolar patients measured on WHOQOL, they also found psychological and neurocognitive deficits were strongly correlated with lower QOL.

CONCLUSIONS

a) QOL in bipolar disorder patients under remission was significantly lower compared to healthy individuals

b) Duration of illness did not significantly reduce QOL

c) Number of episodes did not influence the QOL of the patients

d) Patients with current depressive symptoms significantly had lower QOL in physical, psychological, social and environmental domains

e) Psychological health was significantly influenced by the Hassles score

f) Higher number of daily hassles and its severity affect the psychological health of the patients

g) Hassles intensity score affected both psychological and social domains

h) The number of life events preceding one year with high total life events score significantly affected the psychological health in bipolar patients

i) Majority of the patients perceived social support from their family members

j) Social support had significant positive correlation on the QOL of the patients

LIMITATIONS

a) This study was a cross-sectional one.

b) Longitudinal studies are required to find out factors influencing the QOL

c) The sample size is small.

d) This study was carried out in a Govt. General hospital, Thanjavur and not represent the whole population. Hence, the result cannot be generalized.

e) The present study was done with broad aim and wealth of information on specific areas could not be ascertained

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			Raw data of Bipolar patients under remission																				
No	Age	Educ aion	sex	marital status	Relig en	family	Domicile	income	Durati on of illness	Age at onset	No. of episo	PSLES		Hassles score			HR DS	YMR S	WHO-QOL Bref				MDPS S
												LE i y	Score	freque ncy	sever ity	intens ity			Phy	Psy	Social	Enviro n	
1	55	10	**m**	**s**	h	Joint	rural	2000	15	30		4	131	44	86	**2.0**	2	1	20	11	10	25	25
2	40	3	m	m	m	Joint	rural	2000-4000	5	35	4	3	115	26	45	**1.7**	1	0	21	18	11	27	33
3	46	9	m	d	h	Nuclear	rural	4000	4	42	3	1	64	32	67	**2.1**	2	0	24	14	12	27	25
4	35	7	f	m	h	Joint	rural	2000-4000	8	27	5	4	198	40	90	**2.3**	3	1	23	12	10	28	30
5	63	8	m	m	h	Nuclear	urban	2000	45	18	12	3	140	63	143	**2.3**	4	0	16	10	8	24	25
6	50	6	m	m	h	Nuclear	rural	2000-4000	20	30	6	2	122	35	79	**2.3**	1	2	18	19	10	28	30
7	29	2	f	m	h	Joint	rural	2000-4000	10	19	5	2	120	55	136	**2.5**	5	1	17	12	10	26	25
8	50	7	m	s	h	Nuclear	semi u	4000	15	35	10	1	64	18	24	**1.3**	1	0	21	16	12	31	35
9	40	6	m	m	h	Joint	rural	2000-4000	14	26	11	0	0	62	121	**2.0**	2	1	21	15	12	27	27
10	30	12	m	d	h	Joint	rural	2000-4000	12	18	4	3	137	62	155	**2.5**	6	0	16	12	9	24	23
11	32	12	f	m	h	Nuclear	rural	2000-4000	12	20	9	1	47	8	15	**1.9**	1	1	18	16	10	29	20
12	24	12	f	w	c	Nuclear	rural	2000	2	22	2	1	67	17	31	**1.8**	1	0	23	20	9	28	28
13	23	12	f	m	h	Nuclear	semi u	2000-4000	6	18	3	2	121	44	98	**2.2**	3	0	17	11	8	25	30
14	46	7	f	m	h	Nuclear	rural	4000	15	21	3	1	52	25	41	**1.6**	1	2	24	19	10	30	32
15	32	10	m	m	h	Joint	rural	2000-4000	8	24	2	1	39	67	99	**1.5**	1	1	25	17	10	28	40
16	33	12	m	d	h	Nuclear	rural	2000-4000	6	27	2	1	54	56	91	**1.6**	1	1	20	16	12	26	26
17	55	8	m	m	m	Nuclear	urban	4000	8	43	8	2	110	51	87	**1.7**	2	0	21	13	9	24	25
18	45	4	m	m	c	Nuclear	semi u	2000-4000	14	33	11	1	55	41	78	**1.9**	2	1	21	15	8	25	25
19	34	12	f	s	h	Joint	rural	2000	9	23	7	0	0	63	112	**1.8**	2	1	23	12	10	30	31
20	49	9	m	m	h	Nuclear	rural	2000-4000	23	26	14	5	213	56	119	**2.1**	3	1	18	14	9	23	26
21	28	15	f	d	m	family	semi u	4000	9	19	4	3	142	49	99	**2.0**	4	1	16	10	8	23	21
22	38	6	m	m	h	Joint	rural	2000-4000	12	26	6	5	256	57	124	**2.2**	3	1	18	14	7	25	32
23	37	10	m	m	h	Nuclear	semi u	2000-4000	17	20	6	2	125	67	139	**2.1**	2	1	22	15	9	30	30
24	29	8	m	w	h	Joint	rural	2000-4000	6	23	4	0	0	55	78	**1.4**	1	1	20	17	11	26	31

25	26	12	f	m	h	Nuclear	rural	4000	5	21	3	1	61	34	77	**2.3**	2	0	19	13	9	28	30
26	27	11	f	m	h	Nuclear	semi u	2000-4000	6	20	5	2	105	52	98	**1.9**	3	0	20	12	10	25	27
27	51	12	m	d	h	Nuclear	rural	4000	18	33	3	1	95	43	78	**1.8**	2	1	23	10	8	24	25
28	42	15	m	m	h	Nuclear	rural	2000-4000	13	29	6	1	40	12	24	**2.0**	1	2	19	18	11	28	23
29	35	13	m	m	c	Nuclear	rural	2000-4000	13	22	5	7	286	62	154	**2.5**	4	1	22	13	9	22	24
30	34	15	m	w	m	Joint	rural	4000	6	28	4	2	102	57	107	**1.9**	2	1	21	14	9	27	25
31	29	10	f	m	h	Nuclear	rural	2000-4000	8	21	3	1	58	8	13	**1.6**	1	1	18	18	12	20	28
32	52	8	m	s	h	Nuclear	rural	2000	16	24	7	2	89	21	53	**2.5**	2	0	20	13	10	27	31
33	33	12	m	m	h	Joint	rural	2000-4000	15	18	12	2	98	62	134	**2.2**	6	1	16	10	8	24	18
34	55	12	m	d	h	Nuclear	rural	2000-4000	33	22	18	3	123	34	45	**1.3**	1	0	19	17	10	27	28
35	24	13	f	m	h	Nuclear	rural	2000-4000	6	18	3	1	54	42	64	**1.5**	3	0	16	11	9	25	26
36	38	9	m	m	h	Joint	rural	4000	4	34	2	3	110	29	59	**2.0**	2	1	21	14	9	25	22
37	28	10	f	m	h	Nuclear	rural	2000-4000	10	18	5	0	0	18	26	**1.4**	5	0	20	12	10	27	29
38	38	6	f	d	h	Joint	rural	2000-4000	16	22	9	2	87	34	67	**2.0**	3	1	21	12	9	26	26
39	57	8	m	m	h	Joint	urban	2000-4000	22	29	12	4	223	48	111	**2.3**	2	0	23	13	9	28	28
40	44	3	f	w	h	Joint	rural	2000	8	36	2	2	88	17	28	**1.6**	1	0	20	18	10	26	31
41	47	11	f	m	h	Nuclear	rural	2000-4000	19	28	4	1	40	29	49	**1.7**	1	0	22	19	11	30	28
42	32	9	m	m	c	Nuclear	rural	2000-4000	13	19	7	5	210	46	93	**2.0**	5	0	18	13	8	25	22
43	32	5	f	m	h	Joint	rural	2000-4000	8	24	6	2	67	33	57	**1.7**	2	1	22	11	9	28	27
44	35	14	m	m	h	Nuclear	rural	4000	10	18	5	1	51	28	47	**1.7**	4	0	20	14	10	26	24
45	47	8	f	m	h	Joint	rural	2000-4000	6	21	2	0	0	31	54	**1.7**	1	0	24	19	11	28	32
46	45	7	f	d	h	Nuclear	rural	2000-4000	9	36	2	4	189	41	96	**2.3**	2	0	22	11	8	29	29
47	49	9	m	m	m	Nuclear	rural	2000	20	29	6	3	145	28	56	**2.0**	3	1	21	12	9	28	27
48	30	8	m	m	h	Joint	rural	2000-4000	6	24	3	2	78	15	33	**2.2**	2	0	20	13	8	26	23
49	43	4	m	w	h	Nuclear	rural	4000	18	25	10	2	78	23	35	**1.5**	4	0	18	11	9	24	27
50	34	9	m	s	h	Nuclear	rural	2000	8	26	3	0	0	9	15	**1.7**	1	0	23	18	9	27	34

Control- raw data of healthy individuals

No. of cases	Age	sex	Education	marital status	Religion	family	Domicile	income	PSLES		Hassles score			WHO-QOL Bref				MDPSS
									LE i yr	Score	frequency	severity	intensity	Phy	Psy	Social	Environ	
1	24	m	15	s	h	j	ru	<2000	3	144	32	31	**0.97**	25	23	15	37	32
2	33	m	10	se	h	j	u	2000-4000	1	65	28	43	**1.54**	26	24	12	32	30
3	25	f	5	m	h	n	se-u	>4000	1	32	26	52	**2.00**	22	20	11	27	35
4	42	m	7	m	m	j	se-u	>4000	1	72	27	56	**2.07**	30	27	14	36	25
5	22	m	12	m	h	j	ru	2000-4000	2	117	33	35	**1.06**	24	24	12	37	37
6	51	f	15	m	h	n	se-u	<2000	2	95	37	40	**1.08**	28	26	12	33	29
7	48	m	6	se	h	j	ru	2000-4000	1	49	30	46	**1.53**	27	21	13	30	41
8	28	f	9	m	h	n	se-u	>4000	0	0	18	29	**1.61**	23	22	14	35	27
9	36	m	8	m	h	j	ru	2000-4000	1	61	25	40	**1.60**	25	23	11	31	29
10	40	m	12	m	c	j	ru	2000-4000	0	0	12	35	**2.92**	29	27	13	34	33
11	34	f	10	m	c	j	ru	2000-4000	0	0	16	21	**1.31**	28	24	12	32	36
12	52	m	11	m	h	j	ru	2000-4000	2	32	19	23	**1.21**	31	28	14	34	40
13	24	m	15	s	h	n	ru	>4000	3	144	32	31	**0.97**	25	23	15	37	32
14	30	f	17	m	h	j	ru	>4000	1	70	26	33	**1.27**	24	21	11	29	22
15	43	m	13	w	h	n	ru	>4000	1	45	20	27	**1.35**	25	23	12	30	26
16	26	m	6	m	m	n	ru	>4000	2	88	27	29	**1.07**	22	23	14	32	31
17	35	m	9	m	h	n	se-u	<2000	1	42	25	27	**1.08**	28	25	12	30	32
18	51	m	8	se	h	n	ru	<2000	0	0	10	21	**2.10**	29	25	13	32	29
19	41	f	5	m	c	n	u	>4000	1	35	19	26	**1.37**	27	26	11	33	20
20	29	f	5	m	h	j	ru	>4000	0	0	11	24	**2.18**	27	26	12	36	18
21	28	f	10	s	c	n	ru	>4000	0	0	12	20	**1.67**	30	27	14	34	27
22	44	f	12	m	m	j	ru	<2000	1	64	19	30	**1.58**	23	23	13	32	21
23	32	m	0	m	h	j	ru	<2000	2	87	23	35	**1.52**	25	22	15	32	29
24	55	f	15	m	h	n	ru	>4000	2	105	37	40	**1.08**	28	26	12	33	29
25	33	m	10	w	h	n	se-u	<2000	0	0	14	25	**1.79**	23	24	11	27	29
26	50	m	9	m	h	n	se-u	>4000	1	55	15	28	**1.87**	22	23	15	28	25
27	26	m	12	m	h	n	ru	2000-4000	2	90	19	24	1.23	26	26	16	27	30

28	34	f	8	m	h	j	ru	2000-4000	1	65	23	26	1.89	21	26	11	32	38
29	32	m	4	se	h	n	ru	2000-4000	2	97	26	28	1.98	26	29	12	28	38
30	32	f	15	m	h	j	ru	>4000	2	101	37	40	**1.08**	27	22	10	33	26
31	31	m	10	m	h	j	ru	>4000	1	42	16	31	2.01	28	20	15	29	35
32	27	m	11	m	h	j	ru	2000-4000	0	0	16	29	1.39	21	19	16	30	26
33	29	m	10	s	h	j	u	2000-4000	2	96	24	26	1.58	22	18	14	31	33
34	26	m	12	w	h	j	ru	>4000	1	45	18	33	1.36	26	25	15	38	34
35	38	m	10	s	h	n	ru	<2000	0	0	16	37	1.45	29	26	16	33	36
36	29	f	15	m	h	n	ru	2000-4000	2	98	35	40	**1.14**	24	26	14	32	31
37	41	m	7	m	h	j	ru	>4000	2	98	17	32	1.61	25	23	13	29	29
38	45	m	11	m	h	n	ru	>4000	0	0	14	28	1.32	23	24	12	24	27
39	39	m	6	m	h	n	ru	>4000	1	78	22	26	1.09	28	29	15	36	25
40	23	f	15	m	h	n	ru	2000-4000	2	99	37	40	**1.08**	21	28	16	32	29
41	29	f	9	w	h	n	ru	2000	1	45	21	40	1.54	23	26	14	34	31
42	24	m	4	m	h	j	se-u	2000-4000	0	0	19	27	1.09	24	24	14	29	27
43	22	m	11	m	h	n	u	2000-4000	1	54	19	26	1.69	26	29	12	30	29
44	19	m	12	m	h	n	ru	<2000	2	90	18	32	2.11	29	23	12	26	39
45	29	f	15	m	h	j	ru	>4000	3	129	37	36	**0.97**	29	18	12	35	29
46	22	m	7	se	h	n	ru	<2000	1	61	21	31	1.29	26	22	15	29	33
47	31	m	8	s	h	j	ru	<2000	1	61	22	32	1.34	25	23	14	33	35
48	22	m	6	m	h	n	ru	>4000	2	90	26	29	1.32	23	24	10	36	35
49	43	f	9	se	h	n	ru	>4000	0	0	14	38	1.42	30	17	11	30	39
50	30	f	12	s	h	j	ru	2000-4000	3	140	37	40	**1.08**	32	26	12	35	29

ANNEXURE - I

SEMI STRUCTURED PROFORMA

NAME :

AGE (years) :

SEX : Male/Female/Transgender

RELIGION : Hindu/Muslim/Christian/Others

MARITAL STATUS : Married/Unmarried/Widow/Divorced or Separated

EDUCATION : Uneducated/Educated(Details)

PLACE OF RESIDENCE : Rural/Semi-urban/Urban

INCOME :

FAMILY TYPE : Joint/Nuclear

ILLNESS HISTORY:

1. Age at first diagnosis
2. Duration of illness
3. Number of episodes
4. Comorbid mental illnesses

SUBSTANCE ABUSE HISTORY :

COMORBID MEDICAL ILLNESS:

PHYSICAL EXAMINATION:

SCALES AND SCORES:

1. WHOQOL-BREF
2. HDRS
3. YMRS
4. PSLES
5. HASSLES SCALE
6. MSPSS

ANNEXURE – II
WHOQOL-BREF

The following questions ask how you feel about your quality of life, health, or other areas of your life. I will read out each question to you, along with the response options. **Please choose the answer that appears most appropriate.** If you are unsure about which response to give to a question, the first response you think of is often the best one.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life **in the last four weeks.**

		Very poor	Poor	Neither poor nor good	Good	Very good
1.	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2.	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last four weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3.	To what extent do you feel that physical pain prevents you from doing what you need to do?	5	4	3	2	1
4.	How much do you need any medical treatment to function in your daily life?	5	4	3	2	1
5.	How much do you enjoy life?	1	2	3	4	5
6.	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7.	How well are you able to concentrate?	1	2	3	4	5
8.	How safe do you feel in your daily life?	1	2	3	4	5
9.	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about how completely you experience or were able to do certain things in the last four weeks.

		Not at all	A little	Moderately	Mostly	Completely
10.	Do you have enough energy for everyday life?	1	2	3	4	5
11.	Are you able to accept your bodily appearance?	1	2	3	4	5
12.	Have you enough money to meet your needs?	1	2	3	4	5
13.	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14.	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither poor nor good	Good	Very good
15.	How well are you able to get around?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16.	How satisfied are you with your sleep?	1	2	3	4	5
17.	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18.	How satisfied are you with your capacity for work?	1	2	3	4	5
19.	How satisfied are you with yourself?	1	2	3	4	5
20.	How satisfied are you with your personal relationships?	1	2	3	4	5
21.	How satisfied are you with your sex life?	1	2	3	4	5
22.	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23.	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24.	How satisfied are you with your access to health services?	1	2	3	4	5
25.	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to how often you have felt or experienced certain things in the last four weeks.

		Never	Seldom	Quite often	Very often	Always
26.	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	5	4	3	2	1

Do you have any comments about the assessment?

_____

_____

[The following table should be completed after the interview is finished]

		Equations for computing domain scores	Raw score	Transformed scores*	
				4-20	0-100
27.	**Domain 1**	(6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18 ☐ + ☐ + ☐ + ☐ + ☐ + ☐ + ☐	a. =	b:	c:
28.	**Domain 2**	Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26) ☐ + ☐ + ☐ + ☐ + ☐ + ☐	a. =	b:	c:
29.	**Domain 3**	Q20 + Q21 + Q22 ☐ + ☐ + ☐	a. =	b:	c:
30.	**Domain 4**	Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25 ☐ + ☐ + ☐ + ☐ + ☐ + ☐ + ☐ + ☐	a. =	b:	c:

ANNEXURE - III

HAMILTON DEPRESSION RATING SCALE - 21 ITEMS

1. Depressed Mood (sadness, hopeless, helpless, worthless)
- 0 = Absent
- 1 = These feeling states indicated only on questioning
- 2 = These feeling states spontaneously reported verbally
- 3 = Communicates feeling states nonverbally (ie, through facial expression, posture, voice, and tendency to weep)
- 4 = Patient reports virtually only these feeling states in his spontaneous verbal and nonverbal communication

2. Feelings of Guilt
- 0 = Absent
- 1 = Self-reproach, feels he has let people down
- 2 = Ideas of guilt or rumination over past errors or sinful deeds
- 3 = Present illness is a punishment. Delusions of guilt
- 4 = Hears accusatory or denunciatory voices and/or experiences threatening visual hallucinations

3. Suicide
- 0 = Absent
- 1 = Feels life is not worth living
- 2 = Wishes he were dead or any thoughts of possible death to self
- 3 = Suicide ideas or gesture
- 4 = Attempts at suicide (any serious attempt rates 4)

4. Insomnia Early
- 0 = No difficulty falling asleep
- 1 = Complains of occasional difficulty falling asleep (eg, more than 1/2 hour)
- 2 = Complains of nightly difficulty falling asleep

5. Insomnia Middle
- 0 = No difficulty
- 1 = Patient complains of being restless and disturbed during the night
- 2 = Waking during the night – any getting out of bed rates 2 (except for purposes of voiding)

6. Insomnia Late
- 0 = No difficulty
- 1 = Waking in early hours of the morning but goes back to sleep
- 2 = Unable to fall asleep again if he gets out of bed

7. Work and Activities

0 = No difficulty
1 = Thoughts and feelings of incapacity, fatigue, or weakness related to activities, work, or hobbies
2 = Loss of interest in activity; hobbies or work – either directly reported by patient, or indirect in listlessness, indecision and vacillation (feels he has to push self to work or activities)
3 = Decrease in actual time spent in activities or decrease in productivity. In hospital, rate 3 if patient does not spend at least 3 hours a day in activities (hospital job or hobbies) exclusive of ward chores
4 = Stopped working because of present illness. In hospital, rate 4 if patient engages in no activities except ward chores, or if patient fails to perform ward chores unassisted

8. Retardation (slowness of thought and speech: impaired ability to concentrate, decreased motor activity)

0 = Normal speech and thought
1 = Slight retardation at interview
2 = Obvious retardation at interview
3 = Interview difficult
4 = Complete stupor

9. Agitation

0 = None
1 = Fidgetiness
2 = Playing with hands, hair, etc
3 = Moving about, can't sit still
4 = Hand wringing, nail biting, hair-pulling, biting of lips

10. Anxiety Psychic

0 = No difficulty
1 = Subjective tension and irritability
2 = Worrying about minor matters
3 = Apprehensive attitude apparent in face or speech
4 = Fears expressed without questioning

11. Anxiety Somatic

0 = Absent
1 = Mild
2 = Moderate
3 = Severe
4 = Incapacitating

12. Somatic Symptoms – Gastro-intestinal

0 = None

1 = Loss of appetite but eating without staff encouragement. Heavy feelings in abdomen

2 = Difficulty eating without staff urging. Requests or requires laxatives or medication for bowels or medication for GI symptoms

13. Somatic Symptoms General

0 = None

1 = Heaviness in limbs, back, or head. Backaches, headaches, muscle aches. Loss of energy and fatigability

2 = Any clear-cut symptoms rates 2

14. Genital Symptoms

Symptoms such as: Loss of libido, menstrual disturbances

0 = Absent

1 = Mild

2 = Severe

15. Hypochondriasis

0 = Not present

1 = Self-absorption (bodily)

2 = Preoccupation with health

3 = Frequent complaints, requests for help, etc

4 = Hypochondriacal delusions

16. Loss of Weight

0 = No weight loss

1 = Probable weight loss associated with present illness

2 = Definite (according to patient) weight loss

17. Insight

0 = Acknowledges being depressed and ill

1 = Acknowledges illness but attributes cause to bad food, climate, overwork, virus, need for rest, etc

2 = Denies being ill at all

18) Diurnal variation

A= note whether symptoms are worse in morning or evening.

0=no variation

1=worse in A.M

2=worse in P.M

B= When present mark the severity of variation.

0= none

1=mild

2=severe

19) Depersonalisation & derealization.

0= Absent
1=mild
2= moderate
3=severe
4=incapacitating.

20) Paranoid symptoms

0=none
1=suspicious
2= ideas of reference
3=delusion of reference & persecution

21) Obsession & compulsive symptoms.

0=Absent
1=mild
2= severe

ANNEXURE – IV

MULTIDIMENSIONAL SCALE OF PERCEIVED SOCIAL SUPPORT

Instructions: We are interested in how you feel about the following statements.
Read each statement carefully. Indicate how you feel about each statement.
Circle the "1" if you **Very Strongly Disagree**
Circle the "2" if you **Strongly Disagree**
Circle the "3" if you **Mildly Disagree**
Circle the "4" if you are **Neutral**
Circle the "5"if you **Mildly Agree**
Circle the "6" if you **Strongly Agree**
Circle the "7" if you **Very Strongly Agree**

1. There is a special person who is around when I am in need	1 2 3 4 5 6 7 SO
2. There is a special person with whom I can share my joys and sorrows	1 2 3 4 5 6 7 SO
.	
3. My family really tries to help me.	1 2 3 4 5 6 7 Fam
4. I get the emotional help and support I need from my family.	1 2 3 4 5 6 7 Fam
5. I have a special person who is a real source of comfort to me.	1 2 3 4 5 6 7 SO
6. My friends really try to help me.	1 2 3 4 5 6 7 Fri
7. I can count on my friends when things go wrong.	1 2 3 4 5 6 7 Fri
8. I can talk about my problems with my family.	1 2 3 4 5 6 7 Fam
9. I have friends with whom I can share my joys and sorrows.	1 2 3 4 5 6 7 Fri

10. There is a special person in my life who cares about my feelings. 1 2 3 4 5 6 7 SO

11. My family is willing to help me make decisions. 1 2 3 4 5 6 7 Fam

12. I can talk about my problems with my friends. 1 2 3 4 5 6 7 Fri

The items tended to divide into factor groups relating to the source of the social support, namely family (Fam), friends (Fri) or significant other (SO)

ANNEXURE - V

HASSLES SCALE

Check each hassle that you are currently experiencing and circle the degree of severity using the following scale:

1 = Somewhat severe 2 = Moderately severe 3 = Extremely sever

1) Misplacing or losing things	1	2	3
2) Troublesome neighbours	1	2	3
3) Social obligations	1	2	3
4) Inconsiderate smokers	1	2	3
5) Troubling thoughts about your future	1	2	3
6) Thoughts about death	1	2	3
7) Health of a family member	1	2	3
8) Not enough money for clothing	1	2	3
9) Not enough money for housing	1	2	3
10) Concerns about owing money	1	2	3
11) Concerns about money for emergencies	1	2	3
12) Someone owes you money	1	2	3
13) Financial responsibility for someone who doesn't live with you	1	2	3
14) Conserving electricity, water,	1	2	3
15) Smoking too much	1	2	3
16) Use of alcohol	1	2	3
17) Personal use of drugs	1	2	3
18) Too many responsibilities	1	2	3
19) Decisions about having children	1	2	3
20) Non-family members living with you	1	2	3

21) Planning meals	1	2	3
22) Concerns about the meaning of life	1	2	3
23) Trouble relaxing	1	2	3
24) Problems getting along with co	1	2	3
25) Concerns about medical treatment	1	2	3
26) Fear of rejection	1	2	3
27) Sexual problems due to physical causes	1	2	3
28) Sexual problems other than physical	1	2	3
29) Friends or relatives too far away	1	2	3
30) Wasting time	1	2	3
31) Filling out forms	1	2	3
32) Financing children's education	1	2	3
33) Gender bias/harassment at work	1	2	3
34) Being exploited	1	2	3
35) Rising prices of common goods	1	2	3
36) Not getting enough sleep	1	2	3
37) Problems with your children	1	2	3
38) Problems with younger people	1	2	3
39) Problems with older people	1	2	3
40) Unchallenging work	1	2	3
41) Concerns about meeting high standards	1	2	3
42) Financial dealing with friends	1	2	3
43) Trouble reading, writing, or spelling	1	2	3
44) Trouble with math	1	2	3
45) Legal problems	1	2	3
46) Not enough time to get things done	1	2	3
47) Not enough energy	1	2	3
48) Side effects of medication	1	2	3
49) Physical illness	1	2	3

50) Inability to express yourself	1	2	3
51) Silly practical mistakes	1	2	3
52) Financial security	1	2	3
53) Fear of confrontation	1	2	3
54) Not enough money for health care	1	2	3
55) Feeling lonely	1	2	3
56) Concerns about accidents	1	2	3
57) Concerns about getting a loan/credit	1	2	3
58) Having to wait in lines	1	2	3
59) Too much time on your hands	1	2	3
60) Unexpected company	1	2	3
61) Too many interruptions	1	2	3
62) Not enough money for food	1	2	3
63) No enough money for necessities	1	2	3
64) Dislike co-workers	1	2	3
65) Dislike current work duties	1	2	3
66) Laid-off or out of work	1	2	3
67) Concerns about retirement	1	2	3
68) Care for pets	1	2	3
69) Concerns about job security	1	2	3
70) Housekeeping responsibilities	1	2	3
71) Trouble making decisions	1	2	3
72) Difficult customers/clients	1	2	3
73) Physical appearance	1	2	3
74) Difficulties getting pregnant	1	2	3
75) Concerns about health in general	1	2	3
76) Social isolation	1	2	3
77) Preparing meals	1	2	3
78) Auto maintenance	1	2	3

79) Neighborhood deterioration	1	2	3
80) Declining physical abilities	1	2	3
81) Concerns about bodily functions	1	2	3
82) Not getting enough rest	1	2	3
83) Problems with aging parents	1	2	3
84) Problems with your lover	1	2	3
85) Difficulties seeing or hearing	1	2	3
86) Too many things to do	1	2	3
87) General job dissatisfaction	1	2	3
88) Worry about changing jobs	1	2	3
89) Too many meetings	1	2	3
90) Problems with divorce/separation	1	2	3
91) Gossip	1	2	3
92) Concerns about weight	1	2	3
93) Watching too much television	1	2	3
94) Concerns about inner conflicts	1	2	3
95) Feeling conflicted about what to do	1	2	3
96) Regrets over past decisions	1	2	3
97) Menstrual problems	1	2	3
98) The weather	1	2	3
99) Nightmares	1	2	3
100) Concerns about getting ahead	1	2	3
101) Hassles from boss/supervisor	1	2	3
102) Difficulties with friends	1	2	3
103) Overload of family responsibilities	1	2	3
104) Problems with employees	1	2	3
105) Not enough time for family	1	2	3

106) Transportation problems	1	2	3
107) Not enough money for transportation	1	2	3
108) Not enough money for recreation	1	2	3
109) Shopping responsibilities	1	2	3
110) Prejudice/discrimination from others	1	2	3
111) Property, investments, or taxes	1	2	3
112)Traffic	1	2	3
113) Crime	1	2	3
114) Yard work/outside maintenance	1	2	3
115) Concerns about current events	1	2	3
116) Noise	1	2	3
117) Pollution	1	2	3

Has there been a recent change in your life that affected how you answered this scale? What?

Total Number of Hassles _____ Total Severity Points

_____

Typically, at any point in time, most individuals will endorse 25-30 hassles. If you have more than that number, you are experiencing more than the average stress from the small, frustrating Events of daily life and are at greater risk for stress-related illness.

If your severity points are more than two times greater than the number of hassles, you may need to consider seeking help to moderate your response to small frustration.

ANNEXURE - VI

YOUNG MANIA RATING SCALE(YMRS)

The Young Mania Rating Scale (YMRS) is one of the most frequently utilized rating scales to assess manic symptoms.

The scale has 11 items and is based on the patient's subjective report of his or her clinical condition over the previous 48Hours.

Additional information is based upon clinical observations made during the course of the clinical interview.

The items are selected based upon published descriptions of the core symptoms of mania.

The YMRS follows the style of the Hamilton Rating Scale for Depression (HAM-D) with each item given a severity rating.

There are four items that are graded on a 0 to 8 scale (irritability, speech, thought content, and disruptive/aggressive behavior), while the remaining seven items are graded on a 0 to 4 scale. These four items are given twice the weight of the others to compensate for poor cooperation from severely ill patients. There are well described anchor points for each grade of severity. The authors

encourage the use of whole or half point ratings once experience with the scale is acquired. Typical YMRS baseline scorescan vary a lot. They depend on the patients' clinical features such as mania (YMRS = 12), depression (YMRS = 3), or euthymia (YMRS = 2). Sometimes a clinical study entry requirement of

YMRS > 20 generates a mean YMRS baseline ofabout 30. Strengths of the YMRS include its brevity, widely accepted use, and ease of administration. The usefulness of the scale is limited in populations with diagnoses other than mania.

The YMRS is a rating scale used to evaluate manic symptoms at baseline and over time in individuals with mania.

The scale is generally done by a clinician or other trained rater with expertise with manic patients and takes 15–30 minutes to complete.

1. Elevated Mood

0 Absent

1 Mildly or possibly increased on questioning

2 Definite subjective elevation; optimistic, self-confident; cheerful; appropriate to content

3 Elevated; inappropriate to content; humorous

4 Euphoric; inappropriate laughter; singing

2. Increased Motor Activity-Energy

0 Absent

1 Subjectively increased

2 Animated; gestures increased

3 Excessive energy; hyperactive at times; restless (can be calmed)

4 Motor excitement; continuous hyperactivity (cannot be calmed)

3. Sexual Interest

0 Normal; not increased

1 Mildly or possibly increased

2 Definite subjective increase on questioning

3 Spontaneous sexual content; elaborates on sexual matters; hypersexual by self-report

4 Overt sexual acts (toward patients, staff, or interviewer)

4. Sleep

0 Reports no decrease in sleep

1 Sleeping less than normal amount by up to one hour

2 Sleeping less than normal by more than one hour

3 Reports decreased need for sleep

4 Denies need for sleep

5. Irritability

0 Absent

2 Subjectively increased

4 Irritable at times during interview; recent episodes of anger or annoyance on ward

6 Frequently irritable during interview; short, curt throughout

8 Hostile, uncooperative; interview impossible

6. Speech (Rate and Amount)

0 No increase

2 Feels talkative

4 Increased rate or amount at times, verbose at times

6 Push; consistently increased rate and amount; difficult to interrupt

8 Pressured; uninterruptible, continuous speech

7. Language-Thought Disorder

0 Absent

1 Circumstantial; mild distractibility; quick thoughts

2 Distractible, loses goal of thought; changes topics frequently; racing thoughts

3 Flight of ideas; tangentiality; difficult to follow; rhyming, echolalia

4 Incoherent; communication impossible

8. Content

0 Normal

2 Questionable plans, new interests

4 Special project(s); hyper-religious

6 Grandiose or paranoid ideas; ideas of reference

8 Delusions; hallucinations

9. Disruptive-Aggressive Behavior

0 Absent, cooperative

2 Sarcastic; loud at times, guarded

4 Demanding; threats on ward

6 Threatens interviewer; shouting; interview difficult

8 Assaultive; destructive; interview impossible

10. Appearance

0 Appropriate dress and grooming

1 Minimally unkempt

2 Poorly groomed; moderately disheveled; overdressed

3 Disheveled; partly clothed; garish make-up

4 Completely unkempt; decorated; bizarre garb

11. Insight

0 Present; admits illness; agrees with need for treatment

1 Possibly ill

2 Admits behavior change, but denies illness

3 Admits possible change in behavior, but denies illness

4 Denies any behavior changes

ANNEXURE - VII
PRESUMPTIVE STRESSFUL LIFE EVENT SCALE

Rank No	Life events	Mean Stress Score
1.	Death of spouse	95
2.	Extra marital relation of spouse	80
3.	Marital separation / divorce	77
4.	Suspension or dismissal from job	76
5.	Detention in jail of self or close family member	72
6.	Lack of Child	67
7.	Death of close family member	66
8.	Marital conflict	64
9.	Property or crops damaged	61
10.	Death of friend	60
11.	Robbery or theft	59
12.	Excessive alcohol or drug use by family member	58
13.	Conflict with in laws (other than dowry)	57
14.	Broken engagement or love affair	57
15.	Major personal illness or injury	55
16.	Son or daughter leaving home	55
17.	Financial loss or problems	54
18.	Illness of family member	52
19.	Trouble at working with colleagues / superior or subordinates	58
20.	Prophecy of astrologer or palmist etc.	52
21.	Pregnancy of wife (wanted or unwanted)	51
22.	Conflict over dowry (Self or Spouse)	51
23.	Sexual problems	51
24.	Self or family member unemployed	51

25. Lack of son	51
26. Large loan	49
27. Marriage of daughter / dependent sister	49
28. Minor violation of law	48
29. Family conflict	47
30. Break up with friend	47
31. Major purchase or construction of house	46
32. Death of pet	44
33. Failure in examination	43
34. Appearing for an exam or interview	43
35. Getting married and engaged	43
36. Trouble with neighbour	40
37. Unfulfilled commitments	40
38. Change of residence	39
39. Change or expansion of Business	37
40. Outstanding personal achievement	37
41. Beginning or end of schooling	36
42. Retirement	35
43. Change in working conditions or transfer	33
44. Change in sleeping habits	33
45. Birth of daughter	30
46. Gain of new family member	30
47. Reduction in no; of family function	29
48. Change in social activities	28
49. Change in eating habits	27
50. Wife begins or stops work	25
51. Going on pleasure trip or pilgrimage	20

ANNEXURE – VIII

GENERAL HEALTH QUESTIONNAIRE (GHQ28) David Goldberg

Please read this carefully. We would like to know if you have had any medical complaints and how your health has been in general, over the past few weeks. Please answer ALL the questions on the following pages simply by underlining the answer which you think most nearly applies to you. Remember that we want to know about present and recent complaints, not those that you had in the past. It is important that you try to answer ALL the questions. Thank you very much for your co-operation.

Have you recently

A1. been feeling perfectly well and in good health?

a) Better than usual b) Same as usual
c) Worse than usual d) Much worse than usual

A2 been feeling in need of a good tonic?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

A3 been feeling run down and out of sorts?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

A4 felt that you are ill?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

A5 been getting any pains in your head?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

A6 been getting a feeling of tightness or pressure in your head?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

A7 been having hot or cold spells?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

B1 lost much sleep over worry?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

B2 had difficulty in staying asleep once you are off?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

B3 felt constantly under strain?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

B4 had been getting edgy and bad-tempered?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

B5 been getting scared or panicky for no good reason?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

B6 found everything getting on top of you?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

B7 been feeling nervous and strung-up all the time?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

Have you recently

Cl been managing to keep yourself busy and occupied?

a) More so than usual b) Same as usual
c) Rather less than usual d) Much less than usual

C2 been taking longer over the thing you do?

a) Quicker than usual b) Same as usual
c) Longer than usual d) Much longer than usual

C3 felt on the whole you were doing things well?

a) Better than usual b) About the same
c) Less well than usual d) Much less well

C4 been satisfied with the way you've carried out your task?

a) More satisfied b) About the same
c) Less satisfied than usual d) Much less well

C5 felt that you are playing a useful part in things?

a) More so than usual b) Same as usual
c) Rather less than usual d) Much less than usual

C6 felt capable of making decision about things?

a) More so than usual b) Same as usual
c) Rather less than usual d) Much less than usual

C7 been able to enjoy your normal day-to-day activities?

a) More so than usual b) Same as usual
c) Rather less than usual d) Much less than usual

Dl been thinking of yourself as a worthless person?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

D2 felt that life is entirely hopeless?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

D3 felt that life isn't worth living?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

D4 thought of the possibility that you might make away with yourself?

a) Definitely not b) I don’t think so
c) Has crossed my mind d) Definitely has

D5 found at times you couldn't do anything because your nerves were too bad?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

D6 found yourself wishing you were Dead and away from it all?

a) Not at all b) No more than usual
c) Rather more than usual d) Much more than usual

D7 found that the idea of taking your own life kept coming into your mind?

a) Definitely not b) I don’t think so
c) Has crossed my mind d) Definitely has

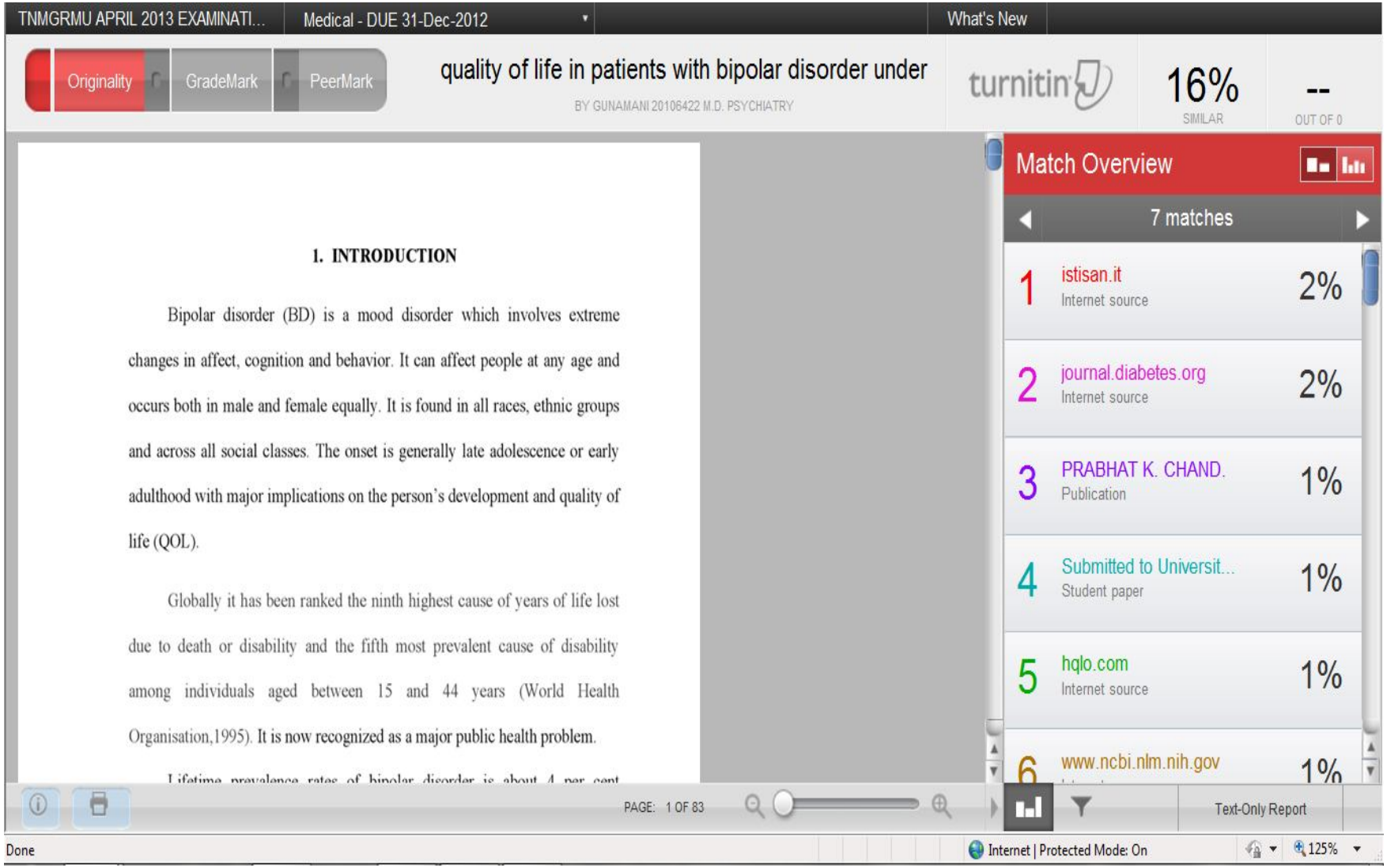
ANNEXURE - IX

INFORMED CONSENT

I Mr / Mrs/ Ms ..... hereby voluntarily agree to participate in the study on Quality of Life in patients with bipolar disorder under remission in relation to clinical variables and psychosocial factors. The study is being carried out to understand the quality of life of the bipolar patients and how it is being affected by various factors like stressful life events and social support experienced by the patients. It will be carried out in a single session of maximum 90 to 120 minutes duration. I understand that I have the option to withdraw from the study at any point if I wish to do so. I also understand that the information I provide will be kept strictly confidential and that I will have no direct benefits from participation in the study. I know that I can contact the investigator for any further queries that I may have.

Signature of investigator Signature of participant

Date: Date: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1. INTRODUCTION
Bipolar disorder (BD) is a mood disorder which involves extreme changes in affect, cognition and behavior. It can affect people at any age and occurs both in male and female equally. It is found in all races, ethnic groups and across all social classes. The onset is generally late adolescence or early adulthood with major implications on the person's development and quality of life (QOL).
Globally it has been ranked the ninth highest cause of years of life lost due to death or disability and the fifth most prevalent cause of disability among individuals aged between 15 and 44 years (World Health Organisation,1995). It is now recognized as a major public health problem.
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